Y820.na.11

THE BUILDER's JEWEL:
OR, THE
YOUTH's INSTRUCTOR,
AND
WORKMAN's REMEMBRANCER.

EXPLAINING
SHORT and EASY RULES,
Made familiar to the meaneſt Capacity,
For DRAWING and WORKING,

I. The FIVE ORDERS of Columns entire; or any Part of an Order, without Regard to the Module or Diameter.

And to enrich them
With their Ruſticks, Flutings, Cablings, Dentules, Modillions, *&c.*
Alſo to proportion
Their Doors, Windows, Intercolumnations, Portico's, and Arcades.

TOGETHER WITH
Fourteen Varieties of Raking, Circular, Scrolled, Compound, and Contracted Pediments; and the true Formation and Accadering of their Raking and Returned Cornices; and Mouldings for Capping their Dentules and Modillions.

II. Block and Cantaliver Cornices, Ruſtick Quoins, Cornices proportioned to Rooms, Angle Brackets, Mouldings for Tabernacle Frames, Pannelling, and Centering for Groins, Truſſed Partitions, Girders, Roofs and Domes. With a Section of the Dome of St. PAUL's, LONDON.

The Whole illuſtrated by upwards of 200 Examples, engraved on 100 Copper-Plates.

By B. and T. LANGLEY.

LONDON,
Printed for R. WARE, at the *Bible* and *Sun*, on *Ludgate-Hill.* M.DCC.LVII.
(Price 4 *s.* 6 *d.*)

John [redacted]
his Book
April 29 1792

INTRODUCTION.

NOTWITHSTANDING there are many Volumes already extant on the Subject of Architecture; yet, as not one of them is made a fit Size for the Pocket; and it being an Impoſſibility for the general Part of Workmen to retain and carry in their Minds all the uſeful Rules and Proportions, by which Works in general are performed: I have therefore, at the Requeſt of many good Workmen, and for the Sake of young Students, compiled this Work; wherein I have reduced the whole to ſuch ſhort and eaſy Rules, that the Workman may not only at the firſt View renew his Memory, as Occaſions may require, but Apprentices, who may be abſolutely unacquainted with this noble Art, and are ſo unfortunate as many have been, and are, to be bound to Jobbing Maſters, who know but little; may without the Help of any, by aſſiduous Application at their leiſure Hours, in Evenings when the Buſineſs of Days is over, *&c.* make themſelves ſuch Maſters herein, that few Maſters are able or willing to make them. And indeed I muſt own, that 'tis a Pleaſure to me, to ſee the Spirit of Emulation ſo powerful among young Builders at this Time; when every one of Senſe is endeavouring to become the moſt excellent in his Way, and thereby make himſelf the moſt uſeful both to himſelf and his Country.

It is uſeful Knowledge only that makes one Man more valuable than another, and eſpecially that Part of Knowledge, which immediately concerns the Buſineſs he is to live by; and therefore, if this Work ſhould prove a Help to the Improvement of Knowledge in *Youth*, (for whoſe Sakes 'tis chiefly intended,) and be no Affront to the *ſage Workman*, by re-informing him of thoſe Rules which have ſlipt his Memory, and informing him of others which he never knew, it will anſwer the deſired End of their hearty Well-wiſher,

London, Nov. 2, 1746. THO. LANGLEY.

CHAP. I. *Of the Orders in general, and of their principal Parts.*

THE Orders in general are the *Tuſcan*, *Dorick*, *Ionick*, *Corinthian*, and *Compoſite*.

THEIR principal Parts are their Pedeſtals, Columns, and Entablatures.

THE Height of the Pedeſtal in every Order is always one fifth of the whole Height of the entire Order.

THE Height of the *Tuſcan* Column is 7 Diameters, the *Dorick* 8, the *Ionick* 9, and the *Corinthian* and *Compoſite* each 10 Diameters.

THE *Tuſcan* Column is diminiſhed at its Aſtragal or Neck of its Capital, one 4th of its Diameter next above its Baſe; the *Dorick* one 5th; the *Ionick*, *Corinthian*, and *Compoſite*, each one 6th.

THE Diminution of every Column begins at one third of the Shaft's Height above the Baſe.

THE Heights of the *Tuſcan* and *Dorick* Entablatures are each equal to one fourth of their Column's Height; and the *Ionick*, *Corinthian*, and *Compoſite*, to one fifth of their Column's Height.

THESE general Proportions of their principal Parts being firſt underſtood, the Proportions of their particular Parts may be eaſily underſtood alſo as following.

CHAP. II. *Of* PEDESTALS, *and their Parts.*

EVERY perfect Pedeſtal conſiſts of three principal Parts; namely, a Baſe, Dado or Die, and Cornice, which are divided as follows.

The Diviſion of the principal Parts of Pedeſtals explained.

RULE. Divide the given Height in 4 Parts, as in Plates I, X, XXI, XXXIX, and LVII; give the lower 1 to the Height of the Plinth; one third of the next 1 to the Height of the Mouldings on the Plinth; half the upper 1 to the Height of the Cornice; and the Remains between will be the Height of the Dado.

WHEN a Column is placed on a Pedeſtal, the Projection of the Pedeſtal's Dado is found by the Projection of the Plinth to the Baſe of the Column; which always ſtands perpendicular over the Upright of the Dado. But if a Pedeſtal is to be made without a Column, the Breadth of the Dado muſt be found, before we can proceed to determine the Projections of the ſeveral Members in the Baſe, and in the Cornice; becauſe 'tis from the Upright of the Dado that their Projections are made; and which are found by the following Rules.

The Breadth of Dado's to Pedeſtals explained.

RULE I. *To find the Breadth of the Dado of the* Tuſcan *Pedeſtal.* Plate I.

DIVIDE the Height of the Plinth and its Mouldings in 5 Parts, and the upper 1 in 7; on z with a Radius of 4 of the great Parts, and 4 ſevenths, deſcribe the Arch xg; then zg is the Semi-breadth required.

RULE II. *To find the Breadth of the Dado of the* Dorick *Pedeſtal.* Plate X.

DIVIDE the Height of the Plinth in 5 Parts, and the upper 1 in 3; turn up 1 of the 3 Parts to n, and on x with the Radius of 5 Parts, and ſaid one third, deſcribe the Arch hy; then xy is the Semi-breadth required.

RULE III. *To find the Breadth of the Dado of the* Ionick *Pedeſtal.* Plate XXI.

DIVIDE the Height of the Plinth in 3 Parts, the upper 1 in 3, and the upper 1 thereof in 3 again; then abating the 2 upper ſmall Parts, with the Remains of the Plinth's Height, on x, deſcribe the Arch vy; then xy is the Semi-breadth required.

RULE IV. *To find the Breadth of the Dado of the* Corinthian *and* Compoſite *Pedeſtals.* Plates XXXIX and LVII.

DIVIDE the Height of the Plinth in 3 Parts, and the upper 1 in 3; on x, with the Radius of two Parts, and 2 thirds, deſcribe the Arch vy; then xy is the Semi-breadth required.

BEFORE I ſhew how to determine the Projections of the Mouldings on the Plinths, and in the Cornices of the Pedeſtals, I muſt ſhew how to divide their reſpective Heights. And, firſt, of the Mouldings on the Plinths of the ſeveral Pedeſtals.

The Diviſions of Mouldings on the Plinths of Pedeſtals explained.

RULE I. *To divide the Heights of the Mouldings on the Plinth of the* Tuſcan *Pedeſtal.* Plate I.

Divide the Height in 6, as at B; give the under and upper ones to the Fillets, and the middle of 4 to the *Cima recta*

RULE II. *To divide the Heights of the Mouldings on the Plinth of the* Dorick *Pedeſtal.* Plate X.

Divide the Height in 4 Parts, as at B; give the upper one to the Cavetto; half the next to its Fillet; half the lower one to the lower Fillet; and the Remains to the *Cima recta.*

RULE III. *To divide the Heights of the Mouldings on the Plinth of the* Ionick *Pedeſtal.* Plate XXI.

Divide the Height in 2, as at B; and each in 4; give the upper 1 and half to the Cavetto; the next half to its Fillet; the next 1 to the Aſtragal; the lower 1 to the Fillet; and the Remains to the *Cima.*

RULE IV. *To divide the Heights of the Mouldings on the Plinth of the* Corinthian *Pedeſtal.* Plate XXXIX.

Divide the Height in 4, as at B; the upper 1 and 3d downwards, each in 3; give the upper 1 and half to the Cavetto; the next half to the Fillet; the next 1 to the Aſtragal; the lower 4th to the Height of the Torus; and one third of the next to its Fillet.

RULE V. *To divide the Heights of the Mouldings on the Plinth of the* Compoſite *Pedeſtal.* Plate LVII.

Divide the Height in 4; and the upper and third Part downwards, each in 3; give the upper 2 of the upper Part to the Cavetto; the next 1 to its Fillet; the lower 4th Part to the Torus; and one third of the next Part to its Fillet.

The Diviſion of Mouldings in the Cornices of Pedeſtals explained.

RULE I. *To divide the Heights of the Mouldings contained in the Cornice of the* Tuſcan *Pedeſtal.* Plate I.

Divide the Height, as at A, in 6 Parts; give the upper 1 to the Regula; the next 3 to the Plat-band; and the lower 2 to the *Cima reverſa.*

RULE II. *To divide the Heights of the Mouldings contained in the Cornice of the* Dorick *Pedeſtal.* Plate X.

DIVIDE the Height, as at A, in 4; give half the upper 1 to the Regula; the next 1 and half to the Plat-band; the next 1 to the Ovolo; the upper one third of the lower 1 to the Fillet; and the remaining two thirds of the lower 1 to the Cavetto.

RULE III. *To divide the Heights of the Mouldings contained in the Cornice of the* Ionick *Pedeſtal.* Plate XXI.

DIVIDE the Height in 12 Parts, as at A; give the upper to the Regula; the next 2 to its *Cima reverſa*; the next 3 to the Plat-band; the next 3 to the Ovolo; the next 1 to the Aſtragal; half the next 1 to its Fillet; and the Remains, 1 and a half, to the Cavetto.

RULE IV. *To divide the Heights of the Mouldings contained in the Cornice of the* Corinthian *Pedeſtal.* Plate XXXIX.

DIVIDE the Height in 3, as at A; alſo the upper 1 in 6, the lower half of the middle 1 in 3, and the lower half of the lower 1 in 3. Of the 6 upper ſmall Parts, give the upper 1 and one third to the Regula; the remaining two thirds and two Parts to the *Cima reverſa*; and the next 1 to the Aſtragal. Give the laſt 1, and half the middle great Part, to the Plat-band; alſo one third of the remaining half to the Fillet on the *Cima recta*; and the remaining two thirds, and the upper half of the lower great Part, to the *Cima recta*. Laſtly, give the upper 1 Part of the half of the lower Part to the Aſtragal; half the next to its Fillet, and the Remains to the Cavetto.

RULE V. *To divide the Heights of the Mouldings contained in the Cornice of the* Compoſite *Pedeſtal.* Plate LVII.

DIVIDE the Height in 6 Parts, as at A; give half the upper 1 to the Regula; the next 1 to the *Cima reverſa*; the next 1 and half to the Plat-band; one third of the next 1 to the Fillet on the *Cima recta*; the remaining two thirds, and the next 1, to the *Cima recta*; one third of the laſt 1 to the Fillet on the Cavetto; and the remaining two thirds to the Cavetto.

The Heights of the ſeveral Mouldings on the Plinths, and in the Cornices, being thus found; I ſhall proceed to ſhew how to give each its proper Projecture from the Upright of their Dado's.

The Projections of the Plinths, and Members on the Plinths, and in the Cornices of Pedeſtals, explained.

Make the Projection of the Plinth from the Upright of its Dado, in every Order, equal to the Height of the Mouldings on the Plinth; and make the Projection of every Cornice the ſame.

To find the Projections of the ſeveral Members.

Divide the Projection of the *Tuſcan* Plinth in 6, and of all the other Orders in 4; and then ſubdividing the Parts, as exhibited in the Scales of Projection, which are placed between the Baſe and Cornice of each Pedeſtal; from thence, ſtop; or terminate the Projection of each Member, as by Inſpection is ſhewn; and thus are the five Orders of Pedeſtals compleated.

CHAP. III. *Of Columns and their Parts.*

A COLUMN conſiſts of three principal Parts, *viz.* A Baſe, Shaft, and Capital.

The Heights of Columns explained.

To find the Heights of Columns, having the Heights of the Columns and Entablatures given, theſe are the Rules.

RULE I. *In the* Tuſcan *and* Dorick *Orders.* Plates I. *and* X.

Divide the given Height of the Column and Entablature in 5 Parts; the upper 1 is the Height of the Entablature, and the lower 4 of the Column. Divide the Height of the *Tuſcan* Column in 7, and of the *Dorick* in 8; and 1 is the Diameter of the Column.

RULE II. *In the* Ionick, Corinthian, *and* Compoſite *Orders.* Plates XXI. XXXIX. *and* LVII.

Divide the given Height of the Column and Entablature in 6 Parts; the upper 1 is the Height of the Entablature, and the lower 5 of the Column. Divide the Height of the *Ionick* Column in 9, and the *Corinthian* and *Compoſite* Columns each in 10 Parts, and 1 is the Diameter.

The Heights and Projections of the Baſes of Columns explained.

THE Height of the Baſe of every Column is preciſely half its Diameter next above the Baſe; and the Projection of the Plinth, from the Upright of the Shaft, is always equal to one 6th of the Column's Diameter.

The Height of Plinths to the Baſes of Columns is either equal to half the Height of the whole Baſe, as in the *Tuſcan* Baſe, Plate II. or to one third of the Baſe's Height, as in the *Dorick* Baſe on the Right-hand Side, Plate XI. And in the *Ionick*, *Corinthian*, and *Compoſite* Baſes, Plates XXII. XLI. and LVIII.

To make the Conſtruction of Baſes to Columns eaſy, I will explain how to divide the Heights, and terminate the Projections of the Members contained in the *Tuſcan* and *Dorick* Baſes; by which thoſe of the *Ionick*, *Corinthian*, and *Compoſite* will be underſtood, as being no more than Repetitions of the like Rules.

RULE I. *To divide the Heights, and terminate the Projections of the Members contained in the Baſe of the* Tuſcan *Column.* Plate II.

I. *To determine their Heights.*

DIVIDE the Height in two, and give the lower 1 to the Plinth as aforeſaid. Divide the upper 1 in 4; give the lower 3 to the Torus, and the upper 1 to the Cincture.

II. *To determine their Projectures.*

DIVIDE the Projection of the Plinth, from the Upright of the Shaft in 4 Parts, and the ſecond Part in 4; then 1 Part and 3 fourths of the ſecond, ſtops the Cincture; and the Torus is always in every Order the ſame Projection as the Plinth.

RULE II. *To divide the Heights, and terminate the Projections of the Members contained in the* Attick *Baſe to the* Dorick *Column, on the Right-hand Side of* Plate XI.

I. *To determine their Heights.*

DIVIDE the Height in 3 Parts; the middle Part in 4, and the upper Part in 2: Give the lower 1 Part to the Plinth, as aforeſaid; three fourths of the next to the lower Torus; and half the upper 1 to the upper Torus. Divide the Remainder between the two

Torus's in 6; give the upper and lower ones to the two Fillets; and the middle 4 to the *Scotia*.

II. *To determine their Projectures.*

DIVIDE the Projection of the Plinth in 4 Parts, and the 2d and 3d Parts in Halves: From whence perpendicular Lines being drawn up, will terminate the Cincture, and the two Fillets of the *Scotia*.

RULE I. *To deſcribe the Curve of this* Scotia.

DIVIDE the Height in 3 Parts, as at B; and draw the Lines *c b* 2 and *a b*. On *b*, deſcribe the Quadrant *a c*; and on the Point 2, the Arch *c d*, which together form the Curve of the *Scotia* to the *Attick* Baſe.

I will alſo now ſhew how to deſcribe the Scotia *in the* Ionick, Corinthian, *and* Compoſite *Baſes, as expreſſed at large by Figure* A. *Plate* XLI.

DIVIDE the Height *b g* in 7 Parts; from the third Part draw *f c* parallel to the Fillets, and equal to 3 Parts; thro' the Point *f* draw the Line *a e* parallel to *b g*, and make *f a* equal to 4 Parts of *b g*. Draw *a c*, and then, on the Point *c*, deſcribe the Arch *b x d*, and on *a* the Arch *d e*.

HAVING thus explained the Baſes, or firſt Parts of Columns, I ſhall now proceed to the ſecond Parts, which is their Shafts.

THE Shaft of a Column is that Part, which is contained between its Baſe and Capital; and conſiſts of 3 Parts, *viz.* its Cincture, Trunk, and Aſtragal; excepting in the *Tuſcan*, where the Cincture is made a Part of the Baſe to the Column.

TO render the Shafts of Columns agreeable to the taper Growth of the Trunks of Trees, (with which the firſt Columns were made) their Shafts, or rather their Trunks are therefore diminiſhed from the lower third Part, up unto the Aſtragal, as following.

The Shafts of Columns, and their Diminution explained.

RULE. *To diminiſh the Shafts of a Column.* Plate I. Fig. A.

SET up the Shaft's Height; at *i k*, its Aſtragal, ſet off its diminiſhed Diameter, *viz.* three fourths, as being *Tuſcan*. Compleat the lower third undiminiſh'd Part of the Shaft, and on *a d* its upper

Part deſcribe the Semicircle *a b c d*. From *i k*, draw the Lines *i b*, *k c*, parallel to *h n* the central Line, cutting the Semicircle in *b* and *c* Divide the Arches *a b* and *c d*, each into any ſame Number of Parts; ſuppoſe 4; and divide *h n* into the ſame Number of Parts alſo, as at the Points *g f e*; through which draw right Lines at right Angles to *h n* of Length at Pleaſure. From the 4 Diviſions in the Arch *a b*, to thoſe in the Arch *c d*, draw Ordinates (as thoſe dotted.) Make the Diameter of the Shaft at *e*, equal to the Length of the firſt Ordinate; at *f*, to the Length of the ſecond Ordinate; and at *g*, to the Length of the third Ordinate. Then from the Points *i k*, through the Extremes of the Diameters *g f e*, to the Points *a d*, trace the Contours or Out-lines of the Shaft's Diminution.

The Manner of Ruſticating the Shafts of Columns explained.

THE Shafts of the *Tuſcan*, *Dorick*, and *Ionick* Columns, are ſometimes ruſticated; but thoſe of the *Corinthian* and *Compoſite* ſeldom or ever.

RULE. *To ruſticate the* Tuſcan, Dorick, *and* Ionick *Shafts.*

DIVIDE the Height of the *Tuſcan* in 7, as in Plate I. the *Dorick* in 8, as in Plate X. and the *Ionick* in 9, as in Plate XXI; then the Blocks and Intervals in the *Tuſcan* and *Ionick* will each be 1 Diameter, and thoſe of the *Dorick* 2 Diameters.

THE Projection of the Blocks are generally made equal to the Projection of the Plinth, as expreſſed in the *Tuſcan* Order, Plate I. and continued upright without Diminution; but as the upper Parts of the Shafts ſeem thereby overcharged, I therefore recommend the Diminution to be parallel with the Shaft, as in the *Dorick* Order, Plate X.

The Manner of Fluting the Shafts of Columns explained.

THE Shafts of the *Dorick*, *Ionick*, *Corinthian*, and *Compoſite* Columns, are ſometimes fluted and cabled; but the Shaft of the *Tuſcan* Column ſeldom or ever was, as being an Embelliſhment too gaudy for ſo robuſt and ſimple an Order, whoſe Beauty conſiſts in its native Plainneſs; and indeed all Columns have a grander Aſpect when entirely plain, than when ruſticated or fluted. The *Dorick* Shaft, with reſpect to its *Herculean* Aſpect, ſhould not be fluted; but as the Ancients diſpenſed therewith, the Moderns frequently do the ſame. But however, as herein Majeſty muſt be preſerved, therefore the Ancients allowed but 20 Flutes, and thoſe without Fillets, as in the Left-ſide of Plate XI. thereby making them of a maſculine Aſpect; whilſt thoſe of the *Ionick* and *Corinthian* Shafts are charged with 24 Flutes, and as many Fillets (each of which are equal to one third of a Flute) which renders them leſs capacious and of an effeminate Aſpect, agreeable to the Characters of thoſe Orders.

RULE. *To divide the Flutes of a* Dorick *Column.* Plate XI.

DIVIDE the Circumference into 20 equal Parts, and draw Lines, thereby making a Polygon of 20 Sides; on each Side compleat an equilateral ſpherical Triangle, as *a b c* on the Left of Plate XI. and on the external Angle, as *b*, deſcribe the Curve *a c*, which is the Depth or Sinking in of a Flute.

RULE. *To divide the Flutes and Fillets of an* Ionick, Corinthian, *or* Compoſite *Column.* Plate XXV.

DIVIDE the Circumference of the Semi-Column in 12 Parts, and each Part in 8, as *a b*. Give 3 Parts to each Semi-Flute, as *a h*, and *i b*; and two Parts to each Fillet, as *h i*.

THE Sinkings or Depths of theſe Fillets are either the Arch of a Quadrant, as thoſe on the Right-hand deſcribed on the Centers *c e*, &c. or of a Semi-circle, as thoſe on the Left, deſcribed on the Centers *x x*, &c.

RULE. *To deſcribe Cablings, in the Flutes of a Column.* Plate XXV.

ON the Points *z z*, with the Radius *z x*, deſcribe the Arches *y x o*, *y x o*, &c. which are the Baſes of the Cablings, and whoſe Height finiſhes at the firſt third Part of the Shaft's Height.

RULE. *To ſet out Flutes and Fillets on the Shaft of a Column.* Plate XXVI.

ON a Pannel, *&c.* draw a right Line, as *a b*, and thereon ſet off

24 equal Parts at Pleaſure, which together muſt always be leſs than the Girt at the Aſtragal of the Column to be fluted.

Divide any 1 Part in 4 Parts, and take 1 Part in the Compaſſes, and ſet it off in every of the other 23 Parts; and from the ſeveral Parts ſo divided (which will be to one another as 1 to 3; that is, a Fillet to a Flute) draw up right Lines at right Angles from the divided Line. This done, ſtrike a perpendicular Chalk-Line down the Front of the Column. And being provided with two ſtraight-edged Pieces of Parchment, &c. therewith girt the Column at its Baſe, and at its Aſtragal. Apply the Girts ſo taken to the parallel Lines aforeſaid, ſo that their Extremes ſhall juſt touch the two outer Parallels, as at *e c* and *d f*. Then keeping them there, with a Pencil mark their Edges at the Meeting of each Parallel; and thereby the two Girts will be divided into the Flutes and Fillets, agreeable to your Column to be fluted. This done, apply any End of each of the Parchment Girts to the Bottom and the Top of the Front central Line; and then embracing the Column at its Baſe and Aſtragal, remove each Girt, until you bring the Middle of a Flute on the central Line; and then prick off the Breadth of every Flute and Fillet in the two Girts, which will ſtand exactly perpendicular over each other.

Note, In large Columns it may be neceſſary to ſet out the Breadths of the Flutes and Fillets, in one or more Places, between the firſt third Part of the Shaft's Height and the Aſtragal; which, when required, may be moſt exactly done, by girting at the Parts required, and proceeding afterwards in every other reſpect, as aforeſaid.

The Fluting of Pilaſters explained.

RULE. *To flute a Pilaſter with Fillets, and a Bead at each Quoin.* Plate XXXVII.

Draw a Line at Pleaſure, as *a b*, and thereon ſet 31 equal Parts, which together ſhall be greater than the Pilaſter to be fluted. Take the 31 Parts in your Compaſſes, *&c.* and on the firſt and laſt Points make the Section *c*, and draw the Lines *c a* and *c b*, which will compleat an equilateral Triangle. Set the Breadth of the Pilaſter from *c* to *d*, and to *e*, and draw the Line *d e*, which being parallel to *a b*, is therefore equal to the Breadth of the Pilaſter. Now right Lines drawn, from the 31 Parts, to the Point *c*, they will divide the Line *d e* in ſimilar 31 Parts alſo. Of which give the 2 outer Parts to the two Beads at the Quoins; the next 2 outer ones to the 2 outer Fillets; the next 3 to the Breadth of a Flute; the next 1 to a Fillet; the next 3 to a Flute; the next 1 to a Fillet, *&c.*

Note, By the ſame Rule a Pilaſter with Flutes and Fillets only, as Fig. A, is divided from 29 Parts, firſt ſet off at Pleaſure; and then proceeding as before.

Having thus explained the Baſes and Shafts of Columns, *&c.* I ſhall now proceed to their Capitals.

Of Capitals, there are two Kinds, *viz.* the one conſiſting of Mouldings only, as thoſe of the *Tuſcan* and *Dorick*; and the other of Mouldings and ſculptured Ornaments, as the *Ionick*, *Corinthian*, and *Compoſite*.

The Heights of Capitals explained.

The Height of the *Tuſcan* and *Dorick* Capitals are each preciſely a Semidiameter, as in Plates II. and XI. The Height of the ancient *Ionick* Capital, in its Mouldings above the Aſtragal of the Shaft, is but one third of a Diameter, or 20 Minutes; but including the Depth of its Volute, 'tis 35 Minutes, as in Plate XXIII. which exceeds the Volute to the modern Capital by 5 Minutes. The Height of the *Corinthian* Capital is one Diameter and one ſixth, as alſo is the Height of the *Compoſite* Capital.

The Diviſions and Projections of the Members in the Tuſcan *and* Dorick *Capitals explained.* Plates II. and XI.

RULE I. To divide the Heights, and determine the Projections of the Members in the Capital of a *Tuſcan* Column or Pilaſter.

I. *To divide the Heights of the Members.* Plate II.

Divide the Height in 3 Parts (as on the Left-ſide.) Divide the middle 1 in 6; of which give the lower to the Fillet under the Ovolo, and the other 5 to the Ovolo. Divide the upper 1 into 4; give the upper 1 to the Fillet, and the other 3 to the Faſcia of the Abacus. Set down *a b*, half the Height of the Frize or Neck of the Capital, from *b* to *c*, and divide it in 3 Parts; give the upper 2 to the Aſtragal, and the lower 1 to its Fillet.

II. *To determine the Projections.*

Divide the Semidiameter of the Column at its Aſtragal (as is done above on the Capital) in 6 Parts, and give 3 to the Projection of the upper Fillet.

But if the Capital is of an undiminiſhed Pilaſter, (as on the Right-hand Side of Plate II.) then divide the Semi-diameter of the Pilaſter (as above on the Capital) in 8 Parts, and give 3 to the Projection, as before.

Note, By the Scale of Projection, placed againſt the Neck of the Capital, you ſee that the whole Projection is divided in 3; the firſt 1, in 2; and the laſt 1, in 4; the half of the firſt 1 ſtops the Projection of the Fillets under the Aſtragal and Ovolo; and the 2 firſt of the 4, in the outer 1 third Part, ſtops the Ovolo and Faſcia of the Abacus.

RULE II. *To divide the Heights, and determine the Projections of the Members contained in the Capital of a* Dorick *Column or Pilaſter.* Plate XI.

I. *To divide the Heights of the Members.*

Divide the Height in 3 Parts (as on the Left-ſide.) Divide the middle 1 in 3; of which the lower 1 divided in 3, give the upper 2 to the Aſtragal, and lower 1 to the Fillet. Divide the upper 3d Part in 3; give the lower 2 to the Faſcia of the Abacus; and the upper 1 thereof divided in 3, give the upper 1 to the Fillet, and the lower 2 to the *Cima reverſa*.

Note, The Height of the Aſtragal to the Shaft is found, as before in the *Tuſcan* Column, Page 11.

II. *To determine their Projections.*

Divide the Semi-diameter of the Column at its Aſtragal (as above on the Capital) in 4; and give 2 to the Projection of the upper Fillet. But if the Capital is of an undiminiſhed Pilaſter, (as on the Right-hand Side) then divide the Semi-diameter of the

Pilaſter (as above on the Capital) in 5 Parts, and give 2 to the Projection, as before.

By the Scales of Projection on each Side of the Capital, you ſee, that the whole Projection is there divided in 4 Parts; from which, and their Sub-diviſions, the ſeveral Members in the two Varieties of Capitals have their Projections determined.

The ancient Ionick *Capital, and its Volute explained.* Plate XXIII.

RULE I. To divide the Height of its Members, and deſcribe its Volute.

I. *To divide the Height of its Members.*

Divide the given Height as *k x*, in 11 Parts; give the upper 1 to the upper Fillet; the next 2 to the *Cima reverſa*, which with the aforeſaid Fillet makes the Abacus: give the next 1 to the Liſt of the Volute; the next 3 to the Band of the Volute; and the remaining 4 to the Ovolo. This done, ſet down 8 of the above 11 Parts from *x* to I; give the firſt 2 to the Aſtragal; the next 1 to its Fillet; and the lower 5 to the Depth of the Volute. Divide *r s* on the Right-hand (which is equal to *k x*, or 20 Minutes, the Height of the Mouldings of the Capital) in 4 Parts, and turn down 1 Part to *d*; then *r d* will be equal to 25 Minutes, which is equal to the Semi-diameter of the Column at its Shaft. Now admitting *b v* to be the central Line of the Column, make *v c* equal to *r d*, and draw the Line *e c h*, which will be the Upright of the Column. Make *h g* equal to two thirds of *a* 1, the Height of the Aſtragal; and from the Point *g* draw the Cathetus or Line *f g*, parallel to the central Line. Divide *g h* in 4 Parts; the firſt 1 ſtops the Aſtragal at *a*. Make *f n* equal to *f i*, which will terminate the Projection of the Abacus.

RULE II. *To deſcribe the* Ionick *Volute.* Plate XXIII.

From 1 Part below *x*, draw the Line *pmo* for the central Line of the Aſtragal, interſecting the Cathetus *ig* in *o*. On the Point *o*, with the Radius *o z*, deſcribe the Circle or Eye of the Volute (which is repreſented at large by the Figure R,) wherein inſcribe the Geometrical Square, and draw its Diameters 2, 4; and 1, 3; divide

each

each Semi-diameter in 3 Parts, as at the Points 6.10; 5.9; 12.6; and 11.7; which are the Centers numbered in Order, on which the Out-line of the Volute is deſcribed, *viz.* The Point 1 is the Center to the Arch *im*; the Point 2, of the Arch *mg*; the Point 3, of the Arch *gp*, *&c.*

THE inward Line of the Liſt of the Volute is deſcribed on 12 other Centers, which are at one fifth of the Diſtance between the other 12 Centers, and which are ſignified by the ſmall Diviſions next within the 12 Centers in the Eye of the Volute at large, in Plate XXII.

To gradually diminiſh the Liſt of this Volute, we muſt divide its Height or Breadth in 12 Parts, as expreſſed above, in Plate XXII. and at every Quarter of its Rotation abate its Breadth 1 of thoſe Parts, as expreſſed by the numerical Figures affixed; which will cauſe it to terminate at the Eye in a Point.

Note, FIG. AB, Plate XXIII. is a View of half a Side of the Capital, wherein B ſhews the Thickneſs of the Volute, whoſe Height is equal to *ig* in the Front. The Heights of the other Parts are ſhewn by the Scale of Parts on the Left; and is the ſame as the like Scale above.

Note, THE Abacus to this Capital being ſquare, is therefore called by Workmen a *Trencher-Capital*; and indeed very properly, becauſe the Word *Abacus* is derived from the Greek Word *Abax*, ſignifying a ſquare Trencher.

The modern Ionick *Capital explained.* Plate XXIV.

RULE. *To divide the Heights of the Members contained in its Abacus, and to determine their Projections.*

THIS Capital, tho' called Modern, was invented by VINCENT SCAMMOZZI; and, including its Volute, is preciſely half a Diameter in Height.

I. *To find the Heights of the Members.*

DIVIDE its Height in 3 Parts, and the upper half of the upper 1 in 4, as on the Left; of which give the upper 3 to the Ovolo, and the other 1 to the Fillet under it. Divide the lower 2 Parts and half in 8 Parts (as on the Right) give the upper 1 and half to the Faſcia of the Abacus; the next half to the Receſs under the Abacus; the next 2 to the Ovolo; the next 1 to the Aſtragal; and the next half to its Fillet.

II. *To find the Projectures of the Members.*

DRAW the central Line of the Column *bg*; and in any Place, as at *g*, draw the Line *ab* at right Angles to *bg*, and of Length at Pleaſure. Make *gc* and *gd*, each equal to the Semi-diameter *ik*; and divide it into 12 Parts, each repreſenting 5 Minutes (or one 12th of a Diameter;) make *ca* and *db*, each equal to 15 Minutes, or 1 fourth of the Diameter, which terminates the Projection of the extreme Parts or returned Horns of the Abacus; as exhibited by the dotted parallel Lines drawn thence up to them.

AND from the Subdiviſions of the 2 outer 5 Minutes, the Projections of the other Parts of the Abacus are determined in the ſame Manner; as alſo are the Projections of the Ovolo, Aſtragal, and Fillet, repreſented by dotted Lines within the Volute.

THE Volute of this Capital is repreſented in Plate XXII. and is deſcribed the ſame as that of the ancient Capital; for though it appears to be elliptical when ſeen in a direct View, as being thereby ſomething fore-ſhortened, yet 'tis circular, as the other.

UNDER this Capital I have placed half its Plan; whoſe Conſtruction being plainly exhibited by the dotted perpendicular Lines, proceeding from the Members in the Elevation, needs no further Explanation.

The Corinthian *Capital explained.* Plate XLI.

THIS Capital was originally adorned with the Acanthus Leaves only; but as ſome delight in Variety, I have thereſore in Plate XL. given the Acanthus with the Olive, Laurel, and Parſley, to be employed at Diſcretion.

THE Height of this Capital was originally but 1 Diameter; but modern Architects thinking it too ſhort, they therefore added 10 Minutes, thereby making its Height 70 Minutes, and giving it a much more magnificent Aſpect than it had before.

By the Meaſures affixed, which is no more than the Height divided in 7 Parts, of which the upper 1 is the Abacus, the Height of every Part is adjuſted; and by the Plan and Elevation in Plate XLII. the Breadths and Diſtances of the Leaves, *&c.* are fully exemplified in the like Manner.

In the Drawing of this Capital, the young Student muſt firſt accuſtom himſelf to expreſs only the Leaves in Groſs, as expreſſed in this and the XLIVth Plate, until he has made himſelf a Maſter of forming their Out-lines; when it will be a Pleaſure to raffle them, as expreſſed in Plate XLIII. and XLV.

And as the Capital of a Pilaſter has all its Leaves in each Face in a direct View, contrary to thoſe of a Capital to a Column, and is one ſixth of a Diameter more in Breadth; I have therefore, to explain the Difference and Parts, ſhewn in Plate XLIV. the Plan and Elevation of a Capital to a Pilaſter, in the ſame Manner as that of a Column in Plate XLII. as indeed I have alſo the Elevation of a half Capital at large, with its Leaves raffled, as thoſe of Plate XLIII.

The Compoſite *Capital explained.* Plate LVIII.

This Order is called *Compoſite,* becauſe its Capital is compoſed of the *Ionick* and *Corinthian* Capitals; that is, its Abacus, Volutes, Ovolo, and Aſtragal between them, are the very Members which form the Modern *Ionick* Capital. Its two Heights of Leaves are the very ſame as thoſe in the *Corinthian* Capital; and its Stalks, which in the *Corinthian* Capital finiſh with Volutes and Helices, are here ſtopt by the *Ionick* Volutes, and made to finiſh inwardly with Huſks on Tendrels, called Caulicoles.

The Height of this Capital is the ſame as that of the *Corinthian,* and is divided in 7 Parts alſo, of which the upper 1 is the Height of the Abacus; and which being divided in 2, and the upper 1 in 5, the upper 4 is the Height of the Ovolo, and the lower 2 of the Fillet. Divide the lower half of the Height of the Abacus with the next two Parts into 1, and then finiſh the Volute exactly the ſame, as in the Modern *Ionick* Capital, Plate XXIV.

Now,

Now, as the remaining Part of this Capital is entirely *Corinthian* as before proved, 'tis needleſs to ſay more thereof; but that it may be fully exemplified, I have therefore ſhewn its Elevation at large in Plates LIX. and LX. as well for a Pilaſter, as for a Column; as I have done before in the *Corinthian* Order.

CHAP. IV. *Of Entablatures.*

AN Entablature is the uppermoſt or laſt principal Part of an Order, (which *Vitruvius* called *Ornament)* and conſiſts of 3 Parts, *viz.* an Architrave, a Freeze or Frize, and a Cornice.

The Heights of Entablatures being declared in Chap. I. we are now to obſerve that their Projections are equal to their Heights, in all the Orders, excepting the *Dorick*, and that only but when its Mutules are introduced; when it then conſiſts of half the Entablature's whole Height.

The Heights of the ſeveral Entablatures are thus divided into their Architraves, Frizes, Cornices, *&c.*

RULE I. *To divide the* Tuſcan *Entablature into its Architrave, Frize, Cornice,* &c. Plate III.

Firſt, Divide the given Height into 7 Parts; give 2 to the Architrave, 2 to the Frize, and 3 to the Cornice.

Secondly, Divide the Height of the Architrave in 7 Parts; give 2 to the lower Faſcia, 4 to the upper Faſcia, and 1 to the Tenia, whoſe Projection is equal to its Height; and which being divided in 3, give 1 to the Projection of the upper Faſcia.

Thirdly, Divide the Height of the Cornice in 3; divide the upper 1 in 4, and give the upper 1 Part to the Regula, and the other 3 to the *Cima recta*. Divide the middle 1 in 6; give the upper 1 to the Fillet, and the other 5 to the Corona. Divide the lower 1 in 2; give the upper 1 to the Ovolo; and the lower half divided in 4, give the upper 1 to the Fillet, and the other 3 to the Cavetto.

By the Scale of Projection is ſeen, that the Projection of the Corona is two thirds; the Ovolo, one third; and the Fillet of the Cavetto, one ſixth of the whole.

Note, By well underſtanding the Manner of proportioning this Entablature, (which is very eaſy) the others following will become as eaſy: But that the young Student may not be at any ſtand therein, I will, for a further Explanation, explain the Entablatures of the *Dorick* and *Ionick* Orders in the ſame Manner.

RULE II. *To divide the* Dorick *Entablature into its Architrave, Frize, Cornice*, &c. Plate XII.

Firſt, Divide the Height in 8 Parts; give 2 to the Architrave, 3 to the Frize, and 3 to the Cornice.

Secondly, Divide the upper 1 of the Architrave into 3, and give the upper 1 to the Tenia: Divide the lower 2 in 6; give the upper 1 to the Fillet over the Gutta's, and the next 3 to the Gutta's.

Divide the lower third Part of the Height of the Cornice in 3, and give the lower 1 to the Cap of the Triglyph. Divide the remaining Part of the Cornice's Height in 4 Parts, and the upper 1 Part in 4; of which give the upper 1 to the Regula, or upper Fillet on the *Cima recta*; and the lower 3 to the *Cima recta*. The next Part divided in 3, half the upper 1 is the Fillet; and the Remainder the Corona. The next Part being alſo divided in 3, the upper 1 is the Capping of the Mutule, and the lower 2 the Mutule. Laſtly, the lower 4th Part divided in 3, the upper 1 is the Depth of the Ground to the Mutules; and half the lower 1 is the Fillet to the Ovolo of the Bed-mould.

The Projection of this Cornice (as before obſerved) is half the Height of the whole Entablature; and which being divided in 4, as on the *Cima recta*, has the Projections of its Members determined, as by Inſpection is ſhewn.

Now 'tis to be noted, That the Breadth of a Triglyph is always equal to half the Column's Diameter at its Baſe; that its Channellings and Gutta's are found by dividing the Breadth of the Triglyph into 12 Parts, as exhibited at large in Plate XIII. That the Diſtances between the Triglyphs muſt always be equal to the Height of the Frize, and therefore will become exactly ſquare. That theſe Intervals or Squares are called Metopes; and are ſometimes enriched with Roſes, as here expreſſed, or otherwiſe at the Pleaſure of the Architect; and that the Manner of forming the Planceer of this Cornice is ſhewn in Plate XIV.

RULE III. *To divide the* Ionick *Entablatures into the Architrave, Frize, Cornice,* &c

As this Order has two Varieties of Entablatures, *viz.* the one with Dentules, and the other with Modillions; I have therefore ſhewn them both, and by explaining of one, the other will be underſtood.

To divide the Ionick *Entablature with Dentules.* Plate XXVIII.

Firſt, DIVIDE the Height in 10 Parts, give 3 to the Architrave, 3 to the Frize, and 4 to the Cornice.

Secondly, DIVIDE the upper 1 Part of the Architrave in 4; give the upper 1 to the Fillet; the next 2, and 1 fourth of the lower 1, to the *Cima reverſa*; and the remaining 3 fourths of the lower 1 to the Bead. Theſe Members together are called the Tenia of the Architrave, whoſe Fillet's Projection is equal to their whole Heights.

Thirdly, As the Frize of this Order is made ſwelling, therefore divide the Height in 4, and on the middle 2 make the Section *x*, on which deſcribe the Curve of the Frize.

Fourthly, THE Height of the Cornice being in 4 Parts, divide the upper 1 in 4; give the upper 1 to the Regula or Fillet on the *Cima recta*, and the remaining 2, with 2 thirds of the lower 1, to the *Cima recta*; and the 1 third give to the Fillet on the *Cima reverſa.*

DIVIDE the next Part in 4; give the upper 1 to the *Cima recta,* and the other 3 to the Corona.

DIVIDE the next or 3d Part in 6; give the upper 3 to the Ovolo, the next 1 to its Fillet, and the next 1 to the Fillet between the Dentules.

DIVIDE the lower 1 in 3; the upper 1 will terminate the Depth of the Dentules. Divide the middle 1 in 3, and the upper 1 will be the Depth of the Denticule or Faſcia, on which the Dentules are fixed, and the Remains will be the *Cima reverſa*, and lower Member of the Entablature.

THE Projection is divided into 4 principal Parts, as by the Scale againſt the Frize is ſhewn, by which its Members are terminated, as by Inſpection is plain.

To divide the Ionick *Dentules.*

IN an Entablature over a Column, divide the Diſtance between the central Line, and the Upright of the Shaft at its Neck, into 10 Parts; give 2 Parts to the Breadth of a Dentule, and 1 to an Interval. But in an Entablature over an undiminiſhed Pilaſter, divide the aforeſaid Diſtance into 12 Parts, and proceed as before.

Note, THE Breadth of a Dentule is 5 Minutes, and of an Interval 2 Minutes and a half, which are deſcribed at large in Plate XXX.

NOW, as the *Ionick* Entablature with Modillions, as expreſſed in Plate XXIX. has its Members proportioned in like Manner, I therefore need only to note, That the Breadth of each Modillion is 10 Minutes; that the Diſtance or Interval between them is 25 Minutes in an Entablature to a Column, and 30 Minutes in an Entablature to an undiminiſhed Pilaſter. And that the Curve of the Sophete of the *Ionick* Modillion is deſcribed at large in Plate XXX. as following.

The Height and Projecture being before found,

DIVIDE the Length in 6 Parts; and on the Point 5 erect the Perpendicular 5*a* equal to 2 Parts and a half; alſo from the Point 2, let fall the Perpendicular 2*b*, equal to 1 Part and a half, and draw the Line *a b*. On the Point 2, deſcribe the Arch 1*d*; on the Point *b*, the Arch *dc*; and on the Point *a*, the Arch *c* 5.

Note, THE Manner of forming the Return of the Planceer of this Cornice, is ſhewn in Plate XXXI.

RULE III. *To divide the* Corinthian *Entablature into its Architrave, Frize, and Cornice.* Plate XLVI.

1. DIVIDE the Height into 10 Parts; give 3 to the Architrave, 3 to the Frize, and 4 to the Cornice.

2. DIVIDE the Height of the Architrave, and of the Cornice, each in 5 Parts, and ſub-divide them as exhibited; and then proceed in every Reſpect as in the preceding Orders. *Note,*

Note, THAT tho' the Dentules are expreſſed in this Cornice, yet they are not always uſed.

THAT the Breadth of the Modillions are 10 Minutes, as before in the *Ionick*, but their Diſtances are greater.

THE Interval between Modillions in a Cornice over Columns is 25 Minutes; and in a Cornice over undiminiſhed Pilaſters, 30 Minutes.

To render the Parts of this Modillion plain and intelligible, I have ſhewn it at large in Front and Profile, with its Meaſures, in Pl. XLVII. wherein Fig. A repreſents the Eye of its Volute at large, with the Centers numbered; on which its Curves are deſcribed in the very ſame Manner, as the Volute of the *Ionick* Capital.

BETWEEN the Modillions the Planceer of the Sophete of the Corona is enriched with Roſes in hollow Pannels, called Coffers, as expreſſed in Plate XLVIII. which alſo ſhews the Manner of returning the Sophete at an external Angle.

RULE IV. *To divide the* Compoſite *Entablature into its Architrave, Frize, and Cornice.* Plate XLI.

Firſt, DIVIDE the Height into 10 Parts; give 3 to the Architrave, 3 to the Frize, and 4 to the Cornice.

Secondly, DIVIDE the Heights of the Architrave, and of the Cornice, each into 4; ſubdivide their Parts, draw in and terminate their Members by the Scale of Projection, as before done in the preceding Orders. The Manner of enriching the Planceer of the Corona of this Cornice, and returning it at an external Angle, is exhibited in Plate LXII.

CHAP. V. *Of Doors, Windows, Portico's, Arcades, and the Intercolumnation of Columns in general.*

THAT the Young Student may have Pleaſure in the Proceſs of his Study, I have given him an Example of a Door ſquare and circular-headed, with circular and pitched Pediments, a Window, a Portico, and an Arcade, with their Impoſts and Architraves, in each of the firſt 4 Orders; which immediately follow their reſpective Entablatures; and which having their principal Parts determined by their Meaſures affixed, needs no other Explanation. And in order to further enable him in the Art of Deſigning, I have ſhewn the proper Intercolumnations, or juſt Diſtances, that the Columns of every Order muſt be placed in from each other, when employed in Colonades, *&c.* by which he may form new Deſigns at his Pleaſure. See Plates VI, XVII, XXXIV, XXXV, and LIII.

CHAP. VI. *Of Pediments, and the Manner of finding their Raking and Returned Mouldings for their Cornices, and for Capping of their Raking Mutules and Modillions.*

PEDIMENTS, which the *French* call *Frontons*, from the *Latin Frons*, the Forehead, are commonly placed over Windows, Doors, Portico's, *&c.* to carry off the Rains, and to enrich the Order on which they are placed.

PEDIMENTS are either entire or open; and thoſe are ſtraight, circular, compound, *&c.*

AN entire ſtraight Pediment is generally called a pitched Pediment, as the lower Pediment in Plate LXIX. And an entire circular Pediment is generally called a Compaſs Pediment, as the upper Pediment in Plate LXIX.

WHEN a Pediment conſiſts of more than one Arch, as thoſe in Plates LXXI, and LXXII, they are called entire compound Pediments.

OPEN Pediments are thoſe, whoſe raking Members are ſtopt in ſome certain Place between the Points of their Spring, and their Faſtigium or vertical Point; as thoſe in Plate LXIII, the lower Pediment in Plate LXXI, and the upper in Plate LXXIV.

ENTIRE Pediments are the firſt Kind that were made, and were originally placed to Portico's at the Entrances into Temples; but now we place them to Frontiſpieces of Doors, Windows, *&c.* for Ornament and Uſe.

As the entire Pediment by its reclining Surfaces carries off and diſcharges the Rains at its Extremes, therefore none but entire Pediments ſhould be employed abroad; whilſt the broken or open are employed for Ornament only within-ſide, where no Rains can come.

'Tis true we may daily ſee open Pediments placed without-ſide, as is done by *Inigo Jones* at *Shaftſbury* Houſe in *Alderſgate-ſtreet, London*. But, ſurely, nothing can be ſo abſurd, (unleſs it is the placing of an entire Pediment within-ſide a Building, where no Rains can fall; as done by Mr. *Gibbs* within the Church of St. *Mary le Strand)* becauſe, by their being open, they receive the Rains, and diſcharge them in Front, as a ſtraight and level Cornice doth; and therefore of no more Uſe.

As Pediments, when well applied, are very great Enrichments to Buildings, and in many Caſes are very uſeful, I have therefore given 14 Varieties for the young Student's Practice, with their Meaſures affixed; by which they may be drawn and worked of any Magnitude required. *Vide* Plates LXIX, *&c.*

In the Working of Pediments, the chief Difficulty is, to form the Curves of the Raking and Returned Cornices, that ſhall exactly accadeer, or meet at their Mitres; which may be truly worked, as following.

RULE. *To deſcribe the Curve of the Raking Cima recta of a Pediment, having the Curve of the ſtraight or level Cornice given.* Plate LXV.

Let *abg* be the given *Cima recta*; divide its Curve in 4 equal Parts at the Points *def*, and draw the Ordinates *if*, *ke*, and alſo *gd*; from the Points *def*, draw the raking Lines *fq*, *er*, *dx*; and the perpendicular Lines *dk*, *el*, *fm*. In any Place, as at *no*, draw a right Line at right Angles to the raking Lines; and making the Ordinates in Fig. B, as *wq*, *nr*, *ts*, equal to the Ordinates *if*, *ke*, *gd*, in Fig. A, through the Points *qrs*, trace the Curve *pqrsn*; which is the Curve of the Raking *Cima recta* required. And tho', ſtrictly ſpeaking, each half is a Part of an Ellipſis; yet, if Centers be found that ſhall deſcribe the Arch of a Circle to paſs through the three Points *pqr*, and *rsn*, it will not be in the Power of the moſt inquiſitive Eye to diſcover the Difference.

To deſcribe the Curve of the Returned Cornice.

FROM *p*, Fig. C, ſet back *po*, the Projection *bg* in Fig. A, and draw the Perpendicular *on*, on the Top of the Fillet *po*; make the Diſtances *pt*, *tv*, *vw*, equal to the Diſtances *bk*, *kl*, *lm*, in Fig. A; and drawing the Lines *wx*, *vr*, *tg*, parallel to the Perpendicular *on*, they will cut the Raking Lines in the Points *qrsx*. From the Point *p*, thro' the ſaid Points to *n*, trace the Curve *pqrsx*, which is the Curve of the Returned *Cima recta*, as required; for its Ordinates at thoſe Points are equal to the Ordinates in Fig. A.

BY the ſame Rule, the Curves of the Raking and Returned Ovolo's, Plate LXVI, the Raking and Returned Cavetto's, Plate LXVII, and the Raking and Returned *Cima reverſa*; for the Capping of Raking Mutules and Modillions, Plate LXVIII, are found, as is evident to the firſt View.

CHAP. VII. *Of Block and Cantaliver Cornices, Ruſtick Quoins, Cornices and Coves, proportioned to Rooms of any Height, Angle-Brackets, Mouldings for Tabernacle-Frames, Pannels and Centering for Groins.*

I. OF Block Cornices I have given three Varieties in Plate LXXV; where I have firſt ſhewn them in ſmall, to expreſs the Breadth of their Block-Truſſes, and Diſtances at which they are to ſtand; as likewiſe the Manner of applying them over Ruſtick Quoins; and ſecondly, at large, the better to expreſs the Diviſion of their Members.

II. IN Plate LXXIX, I have given an Example of a Cantaliver Cornice at large, which in lofty Rooms under a Cove has a very grand and noble Effect. The Breadth of a Cantaliver is one 4th of its Height, which is equal to the Height of the Frize; and the Diſtance they are placed at is the ſame as their Height; thereby making their Metopes exactly a geometrical Square, as in the *Dorick* Order.

III. COVES to Cielings are of various Heights; as one third, one fourth, one fifth, one ſixth, two ſevenths, two ninths, *&c.* of the whole Height.

A Cove of one third, as Fig. A, Plate LXXXI, is beſt for a lofty Room; and when Windows are made therein, the Groins make a very agreeable Figure, and take off the ſeeming Heavineſs which an entire Cove of a large Height impoſes on the Eye.

The Curve of this Cove *x b* is a Quadrant of a Circle deſcribed on the Center *e*; as alſo is the Curve *a c* of the ſame Radius deſcribed on the Center *b*. To find the Center *b*, after having ſet out the Diſtances of the Columns at 9 Diameters and a half, and deſcribed the Cove *x b*, as aforeſaid, make *d b* equal to *a d*.

A Cove of one fourth, as Fig. A, Plate LXXIX, is alſo fit for a lofty Room, as a Hall, Salon, *&c.* which is thus proportioned: Divide the Height in 20 Parts; give 5 to the Cove, and 2 to the Entablature.

To deſcribe an Angle-Bracket for any Cove, ſuppoſe for Fig. B.

Let *a b c* be a Front-Bracket, and *a f* the Baſe over which the Angle-Bracket is to ſtand. In C draw Ordinates from its Curve to its Baſe *a n*, at any Diſtances, and continue them till they meet *a f* the Baſe of the Angle-Bracket, from whence raiſe Ordinates at right Angles to the ſaid Baſe; and making them reſpectively equal to thoſe in Figure C, through their Extremes trace the Curve *a n e*, which is one Quarter of an Ellipſis, and the Curve of the Angle-Bracket required.

A Cove of one 5th, as Fig. I, Plate LXXIX, is fit for a Room of State, and thus proportioned, *viz.* Divide the Height in 5; give 1 to the Cove, and one third of the next to the Cornice, which is *Dorick* without Mutules, and repreſented at large by Fig. H.

A Cove of one 6th, as the two Coves in Plate LXXX, is fit for Dining-Rooms, *&c.* and is thus proportioned: Divide the Height in 30 Parts; give 5 to the Cove, and 1 to the Cornice.

A Cove of two 7ths, as Fig. B, Plate LXXXI, is fit for a Study or Bed-chamber, and even for a Hall; as herein expreſſed, and is thus proportioned: Divide the Height in 7; give 2 to the Cove, and 1 to the Entablature, which is *Dorick.*

IV. In Plate LXXVI, I have ſhewn how to proportion the *Tuſcan*, *Dorick*, *Ionick*, *&c.* Cornices to the Height of any Room; a Work known, or at leaſt practiſed but by few.

I. *To proportion the* Tuſcan *Cornice to a Room of any Height.*

Divide the Height from the Floor or Dado in 5, and the upper 1 in 5; of which give 3 to the Height of the Cornice, and 2 to the Breadth of its Stile and Height of its Rail, Fig. A.

II. *To proportion the* Dorick *Cornice to a Room of any Height,* *Fig.* B.

Divide the Height in 4, and the upper 1 in 10; of which give 3 to the Height of the Cornice, and 2 to the Breadth of its Stile and Height of its Rail.

III. *To proportion the* Ionick, Corinthian, *or* Compoſite *Cornices to the Height of any Room, Fig.* C.

Divide the Height in 3, and the upper 1 in 5; of which give the upper 1 to the Height of the Cornice, and 3 fifths of the next 1 to the Height of the Rail, and to the Breadth of the Stile.

V. In Plate LXXVII. I have given eight different Mouldings for Pannels; and in Plate LXXVIII, four different Mouldings for Tabernacle-Frames, with proper Enrichments, and their Meaſures affixed; by which they may be drawn and worked, of any Magnitude required.

VI. In Plate LXXXII, I have ſhewn the Manner of finding the Curves of the neceſſary Ribs for Groins, by one general Rule, as follows.

In Fig. A, let *a b c d* be the Plan, and the Semi-circle *a c b* an End Rib, and *c f* its Height. Draw the Diagonal *a d*, as alſo the Ordinates 1 2 3 4, on the Semi-circle Rib, which continue till they meet the Diagonal, in the Points 5 6 7 8; from whence raiſe right Lines perpendicular to *a d*, reſpectively equal to the Ordinates 1 2 3 4; and then tracing the Curve thro' their Extremes, it will be the Curve for the Diagonal Rib, as required.

By the ſame Rule, the Ribs for all other Kinds of regular or irregular Groins are found, be their Plans what they will, and their Arches ſemi-circular, ſemi-elliptical, or Scheme; as is evident by Figures B C D E and F; which a little Inſpection will make evident to the meaneſt Capacity.

CHAP. VIII. *Of Truſſed Partitions, Truſſed Girders, Naked Flooring,* &c.

I. IN Plate LXXXIII, are three Varieties of Truſſed Partitions, of 40, 50, and 60 Feet Bearing, for Graineries, Warehouſes, *&c.* wherein great Weights are laid; of which the middle one is for two Stories Height.

II. IN Plate LXXXIV, the Figures A B C repreſent three Varieties of truſſed Girders; which ought not to exceed 25 or 30 Feet in Length; and Figure D is a Girder cut Camber, which, for Lengths from 15 to 20 Feet, will do without being truſſed, as the preceding.

The Scantlings of Girders ſhould be

	Feet.		Feet.		Inches.		
Lengths from	12	to	15	to be	10	by	8
	15		18		11		9
	18		21		12		10
	21		24		13		11
	24		27		14		12
	27		30		15		13

Note, THAT Girders ſhould have at leaſt 9 Inches Bearing in the Walls, and be bedded on Lintels, laid in Loam, with Arches turned over their Ends, that they may be renewed at any Time without Damage to the Pier.

III. IN the upper Part of this Plate, I have ſhewn three Bays of Joiſts, or naked Flooring; wherein the two outer ones have only their binding Joiſts expreſſed; and that in the Middle with their Bridging Joiſts, (or Furring Joiſts) as called by ſome. In this Kind of Flooring 'tis to be noted, that binding Joiſts are ſo framed as that their under Surface be level with the under Surface of the Girder, and the upper Surface of their Bridgings with the upper Surface of the Girder.

THE Diſtance of binding Joiſts ſhould not exceed 3 Feet and a half, or 4 Feet, in the Clear; and their Scantlings ſhould be as follows, *viz.*

	Feet.		Inches.			
If their Length be	8	their Scantling ſhould be	6	by	5	Inches.
	10		7		5	
	12		8		5	

BRIDGING Joiſts ſhould be laid at 1 Foot in the Clear, and their Scantlings ſhould be 3 by 4, 3 and a half by 4, or 4 by 4, *&c.*

IN common Flooring, where neither Binding nor Bridging Joiſts are uſed, the Scantlings of Joiſts ought to be as follows, *viz.*

	Feet.				
If the Length be	10	their Scantling to be	7	by	3
	11		8		3
	12		9		3

Note, No Joiſts to exceed 12 Feet in Length; to have at leaſt ſix Inches Bearing, and that on a Lintel or Bond Timber; and their Diſtance in the Clear not to exceed one Foot. 'Tis alſo to be obſerved, that all Joiſts on the Breaſts and Backs of Chimneys be framed into Trimming Joiſts (whoſe Scantlings are to be the ſame as thoſe of Binding Joiſts) at 6 or 8 Inches Diſtance behind, and 12, 16, *&c.* Inches before, as *a a.*

CHAP. IX. *Of Roofs.*

THE Requiſites to Roofing, is the Scarfing and Completing of Raiſings, or Wall-Plates, *&c.* to determine the neceſſary Height of the Pitch, agreeable to the Covering; to find the Lengths of Principal and Hip-Rafters, and to back them when neceſſary;

to contrive the proper Truſſes for to ſtrengthen the principal Rafters; and to lay out in Ledgement the ſeveral Skirts; thereby to determine the Quantity of Materials neceſſary; and to find the ſeveral Angles and Lengths of all Parts; ſo as to ſet out Work, and fix, at once, the Whole in a Workman-like Manner, and in the leaſt Time.

NOW, in order to make the young Student a Maſter herein, I have ſhewn,

I. IN Plate LXXXV, by Figures C D E F G H I K L M ten different Manners of Scarfing together the Raiſings of Roofs; which is the firſt Work to be done; and then the Beams being cogged down thereon at their proper Diſtances, which ſhould never exceed 10 Feet in the Clear, we may begin to conſider, and work the Superſtructure to be raiſed thereon.

THE firſt Thing to be conſidered is the Height of the Pitch; which muſt be determined according to the Covering; which, if with plain Tile or Slate, the true Pitch, as Fig. A, will be proper: But if with Pan-tiles or Lead, it may be much lower. But here, for Example's Sake, we will ſuppoſe a Roof to be true Pitch, whoſe Plan is *r v t h*, Fig. B. and whoſe Breadth we will ſuppoſe is equal to *g* 4, Fig. A.

To find the Length of a principal Rafter.

DIVIDE *g* 4, in 4 Parts; on *g* and 4, with the Radius of 3 Parts, make the Section *h*; then draw the Lines *g h*, and *h* 4; and each is the Length of a principal Rafter required.

To find the Length of the Hip-Rafters.

DRAW the Central Line *o a*, and the Diagonals or Baſes, over which the Hip-Rafters are to ſtand; as *r a*, *t a*, *a v*, and *a b*; make *a t*, *a h*, and *a r*, in Fig. A, equal to *a t*, *a h*, and *a r*, in Fig. B, and draw the Lines *h t*, *h h*, and *h r*; then *h r* is the Length of the Hip-Rafter *r p*; *h h* is the Length of the Hip *g h*; and *q v* and *h t* is the Length of the Hip *t ſ*.

OR otherwiſe, on the End of the Diagonal *r a*, raiſe the Perpendicular *a q* equal in Height to *h a* in Fig. A, and draw the Line *r p*, which is the Length of that Hip, and equal to *br*, in Fig. A, as before. By the ſame Rule you may find the Lengths of all the other three Hips.

To find the Angle of the Back of any Hip-Rafter.

THROUGH any Point of its Baſe, as *c* in Fig. B, draw a right Line at right Angles, as *fb*, cutting the Out-lines of the Plan in *f* and *b*. From the Point *c*, let fall a Perpendicular, as *cd*, on the Hip *gb*; and make *ce* equal to *cd*. Draw the Lines *fe*, and *be*, and the Angle *bef* is the Angle of the Back required.

To lay out a Roof in Ledgement. Plate LXXXVI.

LET *bidc* be a given Plan; *ab*, Fig. B, the given Pitch; and *hg*, *he*, a Pair of principal Rafters agreeable thereto.

BY the preceding, draw the Ridge-Line *aa*, and the Diagonals *ad*, *ac*, and *ab*, *ai*. In Fig. B, make *ac*, *ad*, and *ab*, equal to the Diagonals *ad*, *ac*, and *ab*, *ai*, in Fig. A. Thro' the Points *aa*, in Fig. A, draw the two Beams *qk*, and *e*4. Make *rq*, *ſe*, and *kl*, 4*m*, each equal to the Length of a principal Rafter, as *hg*, Fig. B; and draw the Lines *ds*, *sr*, *rb*, and *il*, *lm*, *mc*. On the Points B and *i*, in Fig. A, with the Radius *hb* (the Length of the Hip) make the Section *t*, and draw the Lines *bt* and *ti*.

ON the Point *d*, in Fig. B, with the Length *hd* in Fig. B, and on *c* with the Length *hc*, make the Section *o*; then drawing the Lines *do* and *co*; the Skirts of the whole Roof are laid; which fill up with ſmall and Jack Rafters at Pleaſure.

NOW, when the Skirts of a Roof are thus drawn on Paper, and are cut out round at their Extremes, and be truly bended or turned up on the Out-lines of the Raiſing, as *bi*, *bd*, *dc*, and *ci*; they will all come truly together, and become a Model of the Roof required, wherein every Rafter may be expreſſed in its Place, and the juſt Lengths and Quantity known to a very great Exactneſs.

BY the ſame Rule, the irregular Roof, Plate LXXXVII, is laid out in Ledgement, and its Requiſites found, as is evident at the firſt View.

Note, As this Plan hath not parallel Sides, every Pair of Rafters will therefore be of different Lengths, although the Height of their Pitch is the ſame; and ſo conſequently every Rafter muſt be backed by taking away a Triangle, as *a e b*, Fig. D, and then the Sole of the Foot of a Rafter will be as *c a d b*.

THE following Plates conſiſting wholly of Truſſes for Roofs and Domes, need no Explanation more than their own Figures expreſs, to which I refer.

FINIS.

BOOKS *printed for* R. WARE.

I. A NEW GENERAL ENGLISH DICTIONARY; peculiarly calculated for the Uſe and Improvement of ſuch as are unacquainted with the Learned Languages: Wherein the difficult Words, and Technical Terms made uſe of in Anatomy, Architecture, Arithmetick, Algebra, Aſtronomy, Botany, Chemiſtry, Divinity, Gardening, Grammar, Hawking, Heraldry, Hiſtory, Horſemanſhip, Hunting, Huſbandry, Law, Logick, Mathematicks, Mechanicks, Military Affairs, Muſick, Navigation, Painting, Poetry, Rhetorick, Sculpture, Surgery, &c. are not only fully explained, but accented on their proper Syllables, to prevent a vicious Pronunciation; and mark'd with initial Letters, to denote the Part of Speech to which each Word peculiarly belongs. To which is prefixed, A Compendious Engliſh Grammar, with general Rules for the ready Formation of one Part of Speech from another; by the due Application whereof, ſuch as underſtand Engliſh only, may be able to write as correctly and elegantly, as thoſe who have been ſome Years converſant in the Latin, Greek, &c. Languages. Together with a Supplement of the proper Names of the moſt noted Kingdoms, Provinces, Cities, Towns, Rivers, &c. throughout the known World. As alſo, of the moſt celebrated Emperors, Kings, Queens, Prieſts, Poets, Philoſophers, Generals, &c. whether Jewiſh, Pagan, Mahometan, or Chriſtian; but more eſpecially ſuch as are mentioned either in the Old or New Teſtament. The whole Alphabetically digeſted, and accented in the ſame Manner, and for the ſame Purpoſe, as the preceding Part; being collected for the Uſe of ſuch as have but an imperfect Idea of the Engliſh Orthography. Originally begun by the late Reverend Mr. THOMAS DYCHE, School-Maſter at *Stratford-le-Bow*, Author of the *Guide* to the *Engliſh Tongue*, the *Spelling Dictionary*, &c. And now finiſhed by WILLIAM PARDON, Gent. The Sixth Edition, with the Addition of the ſeveral Market Towns in *England* and *Wales*; giving a general Deſcription of the Places, their Situations, Market Days, Government, Manufactures, Number of Repreſentatives ſent to Parliament, Diſtance from *London*, both of computed and meaſured Miles, &c. Price 6 *s*.

II. The BUILDER'S COMPLEAT ASSISTANT; or, a Library of Arts and Sciences, abſolutely neceſſary to be underſtood by Builders and Workmen in general, *viz.* Arithmetick, Vulgar and Decimal, in whole Numbers and Fractions. 2. Geometry, Lineal, Superficial, and Solid. 3. Architecture, Univerſal. 4. Menſuration. 5. Plain Trigonometry. 6. Surveying of Land, &c. 7. Mechanick Powers. 8. Hydroſtaticks. Illuſtrated by above thirteen hundred Examples of Lines, Superficies, Solids, Mouldings, Pedeſtals, Columns, Pilaſters, Entablatures, Pediments, Impoſts, Block Cornices, Ruſtick Quoins, Frontiſpieces, Arcades, Portico's, &c. Proportioned by Modules and Minutes, according to ANDREA PALLADIO, and by equal Parts. Likewiſe great Varieties of Truſſed Roofs, Timber Bridges, Centerings, Arches, Groins, Twiſted Rails, Compartments, Obeliſques, Vaſes, Pedeſtals for Buſtos, Sun-Dials, Fonts, &c. and Methods for raiſing heavy Bodies by the Force of Levers, Pullies, Axis in Peritrochio, Screws, and Wedges; as alſo Water by the common Pump, Crane, &c. Wherein the Properties and Preſſure of the Air, on Water, &c. are explained. The Whole exemplified by ſeventy-ſeven large Quarto Copper-Plates. By B. LANGLEY. In Two Volumes, Octavo. Printed on Royal Paper. Price 10*s.* 6*d.*

III. A Treatiſe of ARCHITECTURE, with Remarks and Obſervations, by that excellent Maſter thereof, SEBASTIAN LE CLERC, Member of the Academy of Sciences. Neceſſary for all Maſons, Joyners, &c. or any who deſire to attain to a Knowledge of that noble Art. In two Volumes in Octavo, the third Edition. Tranſlated by Mr. CHAMBERS. Price 10*s.* 6*d.* To which are added, 200 curious Copper-Plates by the late ingenious Mr. STURT.

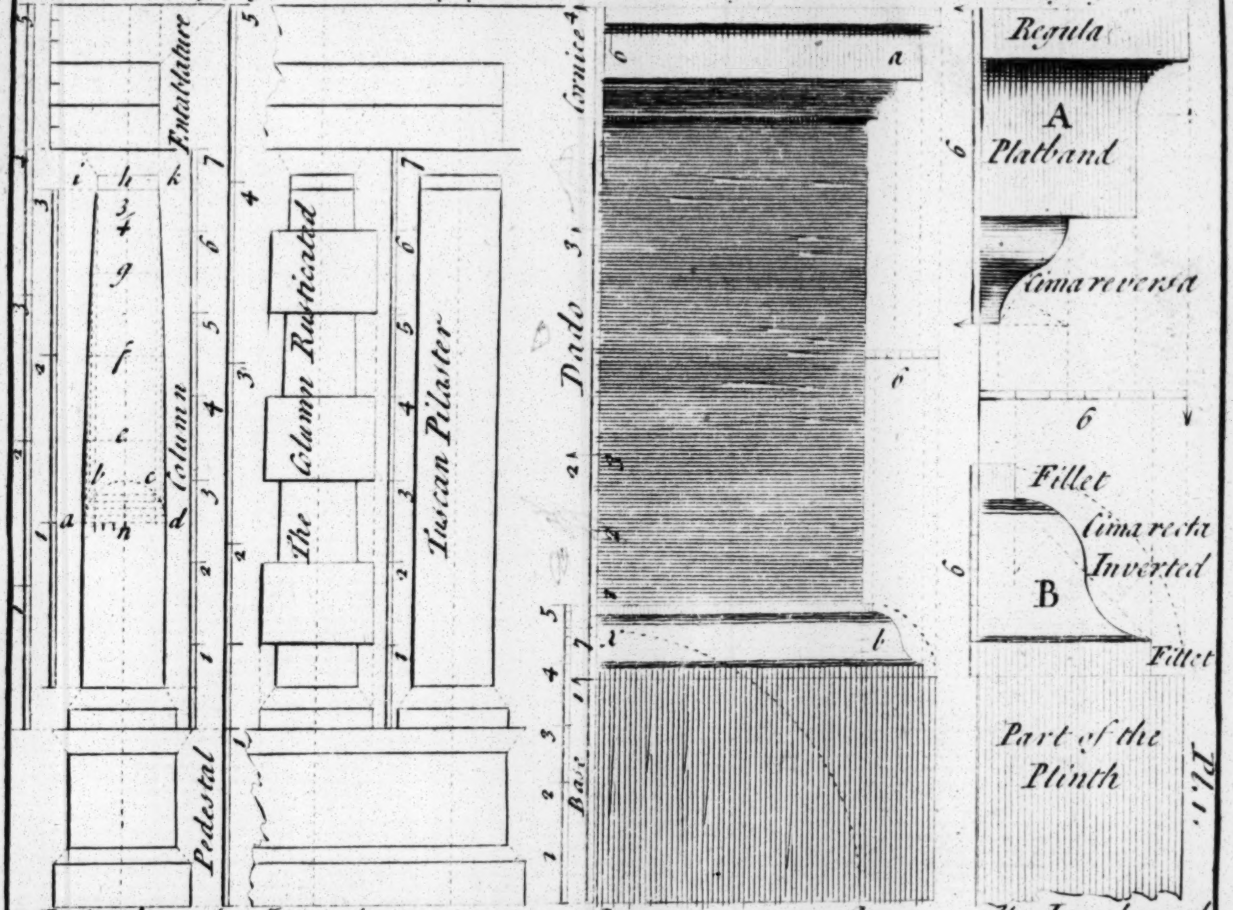
IV. The four Books of Architecture, in one Volume, Folio. By ANDREA PALLADIO. Literally tranſlated from the Original *Italian*, by ISAAC WARE, Eſq.

Particular Care has been taken to preſerve the Proportions and Meaſures from the Original, all the Plates being engraved by the Author's own Hand.

Now Publiſhing Weekly, at 6*d. a Number,*

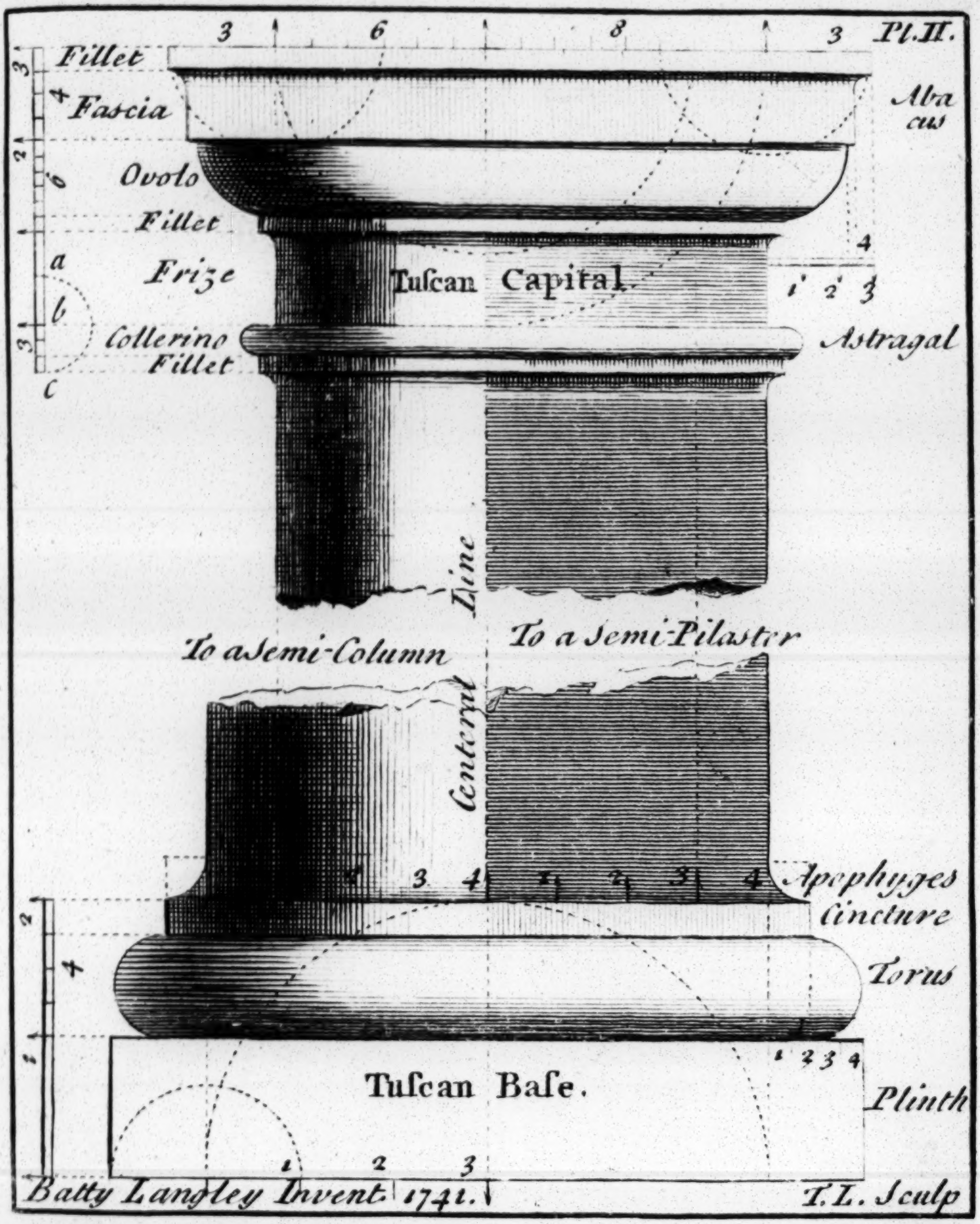
V. The Workman's GOLDEN RULE for Drawing and Working the FIVE ORDERS in ARCHITECTURE. Wherein their Pedeſtals, Columns, Entablatures, Impoſts, and Arches, are taken from the beſt Examples of the Ancients, and proportioned by equal Parts, in a more conciſe, accurate, and eaſy Manner, than has been done in any Language. For the Inſtruction of Apprentices and Journeymen Maſons, Bricklayers, Carpenters, Joyners, Carvers, Turners, Painters, Plaiſterers, Cabinet-Makers, &c. (and ſuch Maſters) who are acquainted with ſo much Architecture, as is abſolutely neceſſary for them to underſtand, in their reſpective Profeſſions; and others, who deſire a juſt Knowledge of the fundamental Rules of that noble Art. By B. LANGLEY, Architect. Price 1*s.* 6*d.* bound.

The Divisions of ye general Parts of ye Tuscan Order with ye Pedestal & its Parts at large.



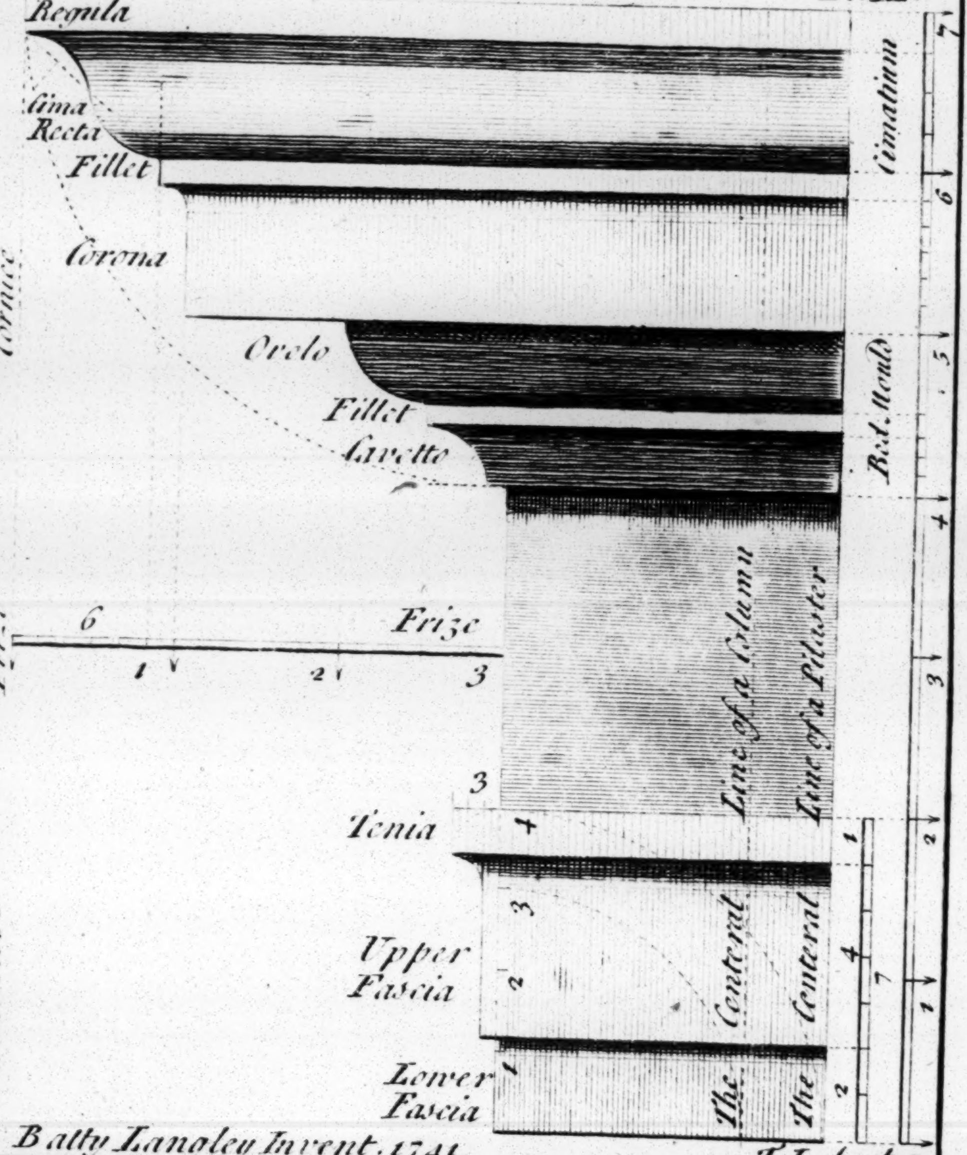
Batty Langley Invent. 1741.

Tho. Langley sculp.



Batty Langley Invent 1741. T.L. Sculp

The Tuscan Entablature. Pl. III.



Batty Langley Invent. 1741.

T. L. Sculp.

Tuscan Doors.

Plate 4.

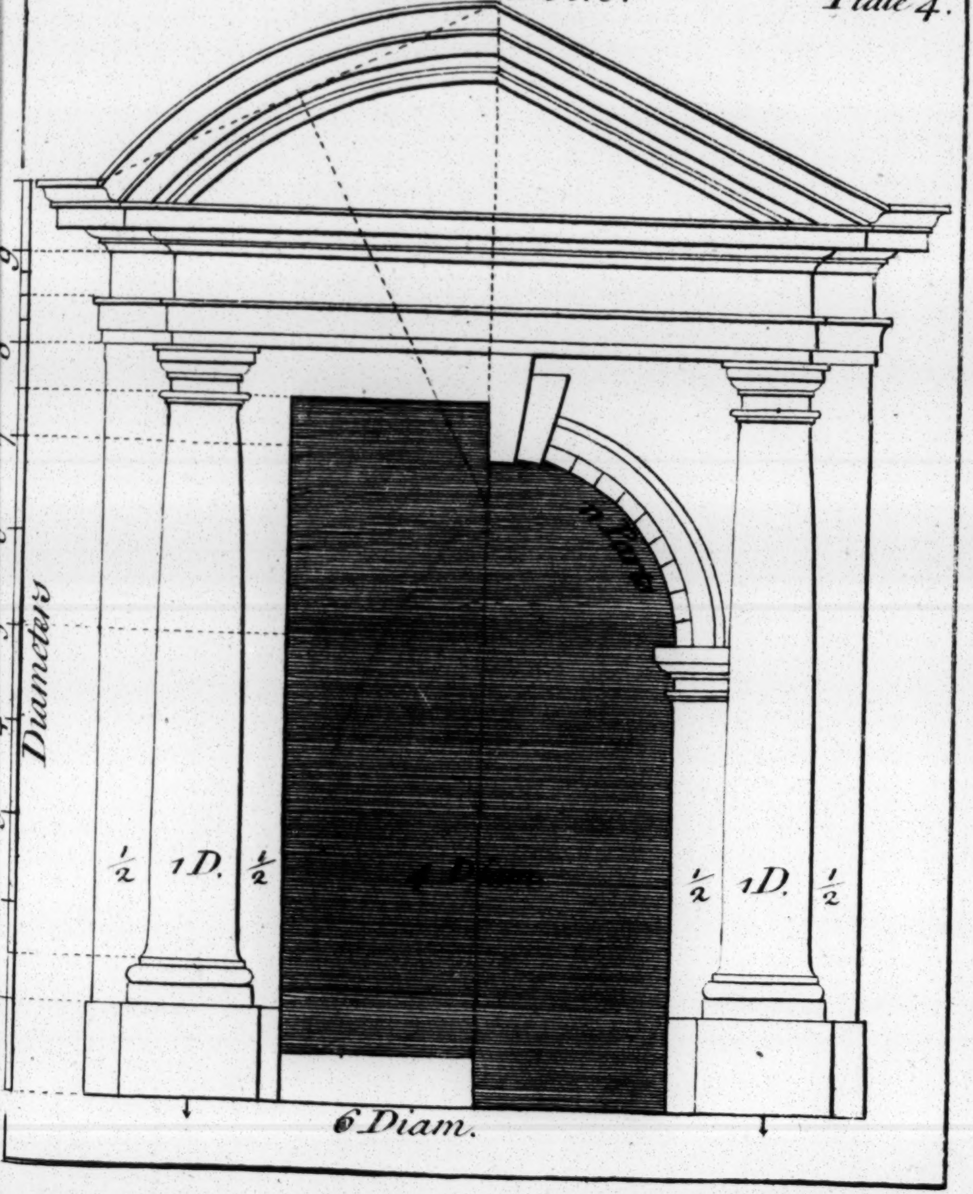
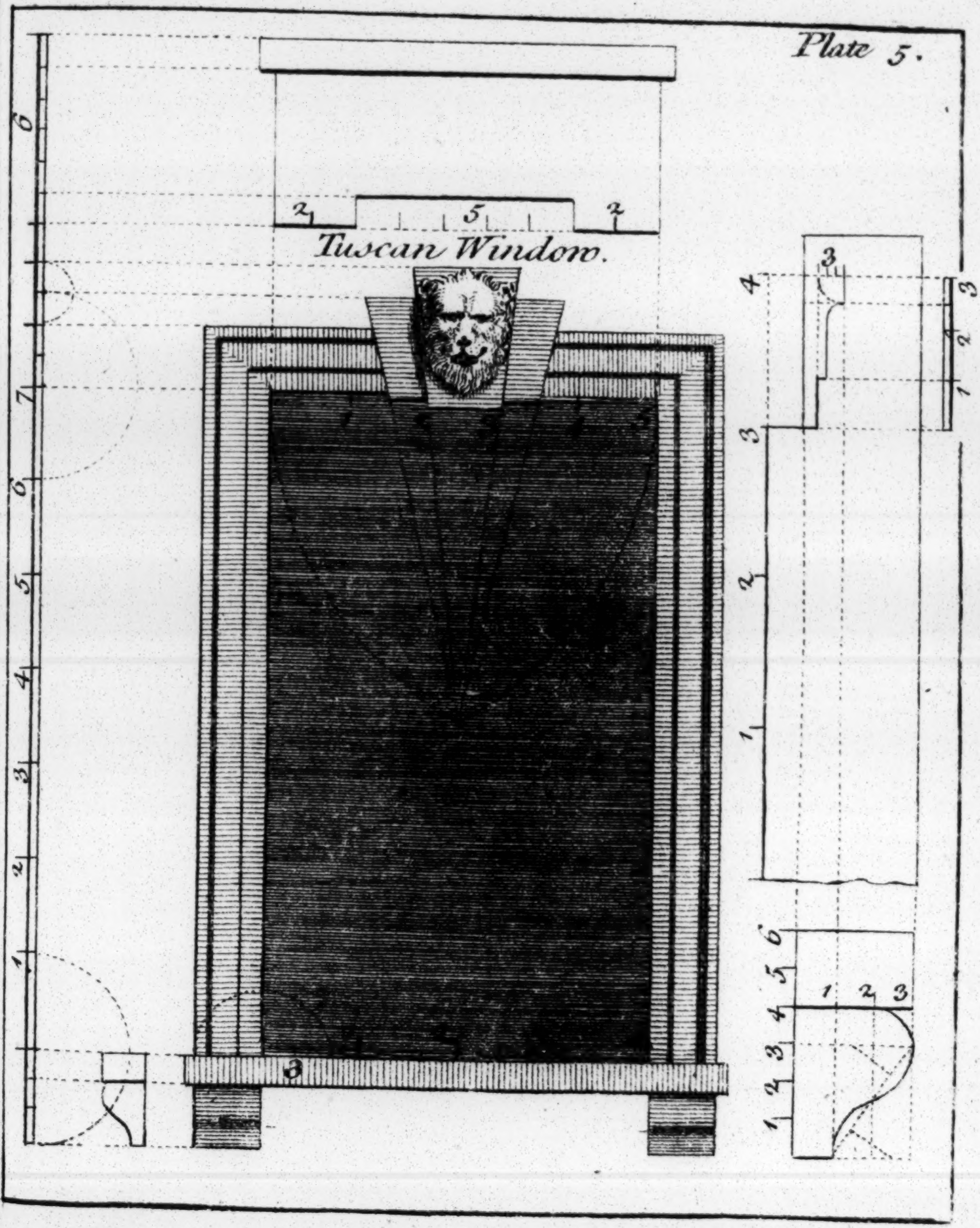
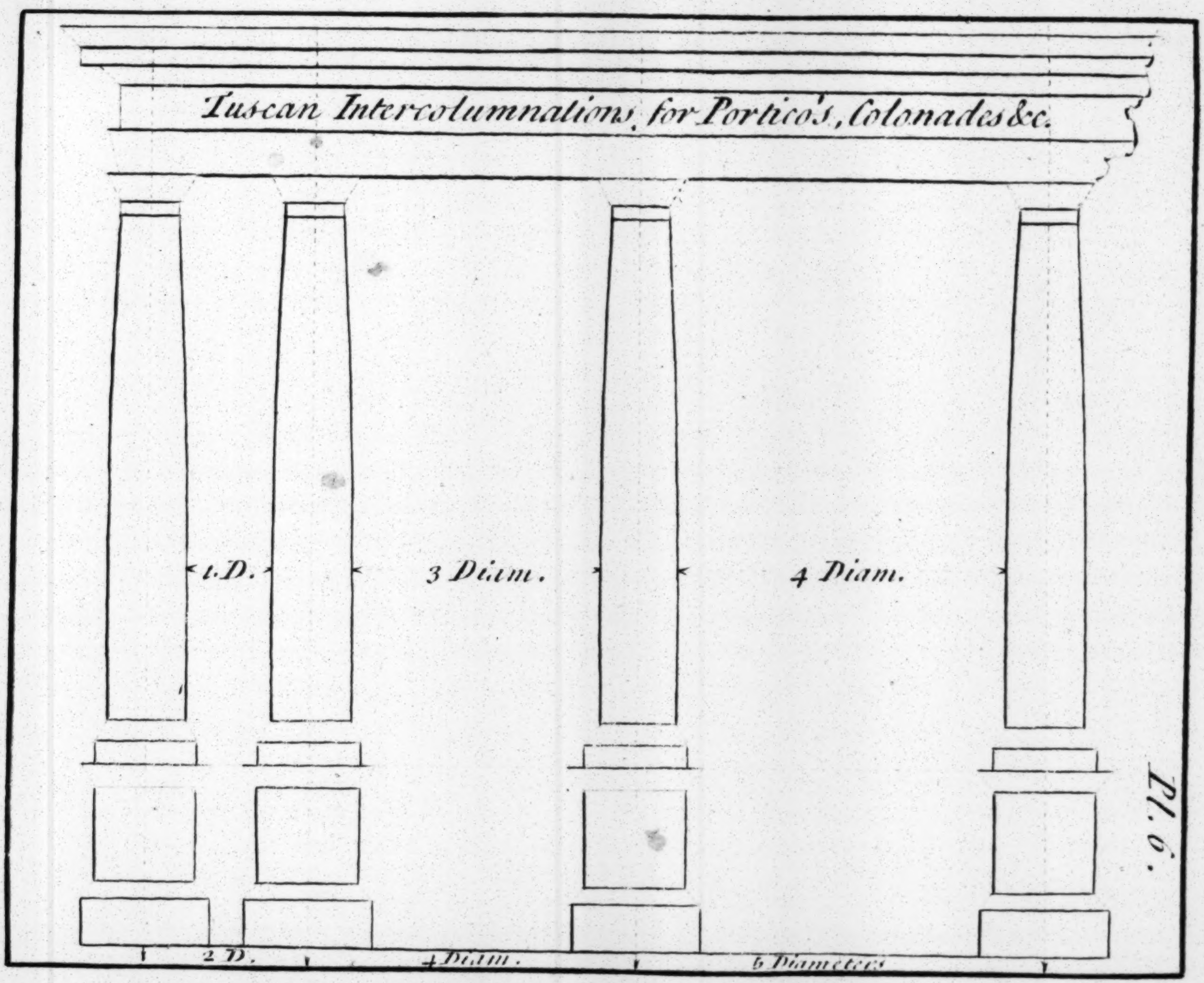


Plate 5.



Tuscan Window.

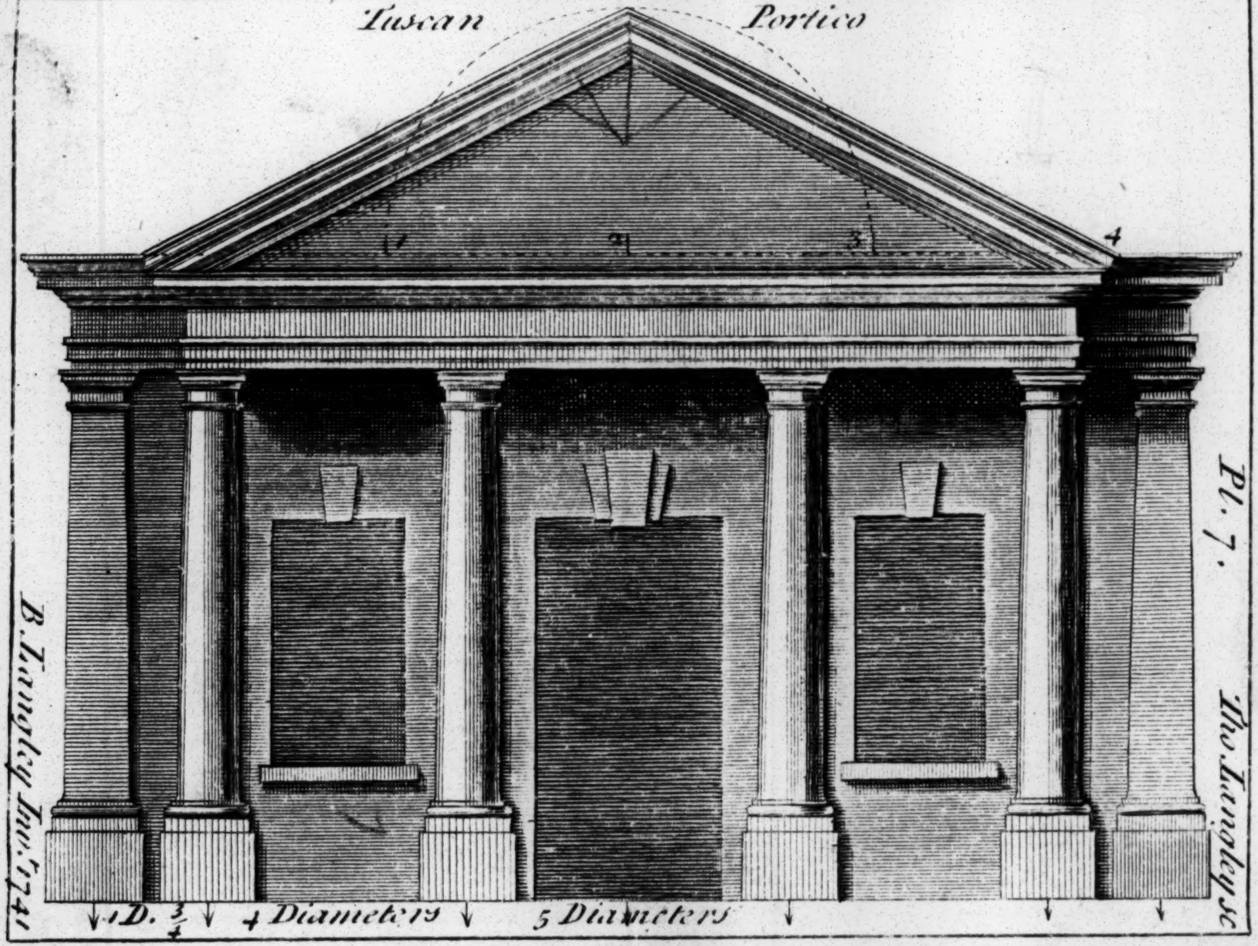


Pl. 6.

Tuscan Intercolumnations, for Portico's, Colonades &c.

Tuscan Portico

Pl. 7.

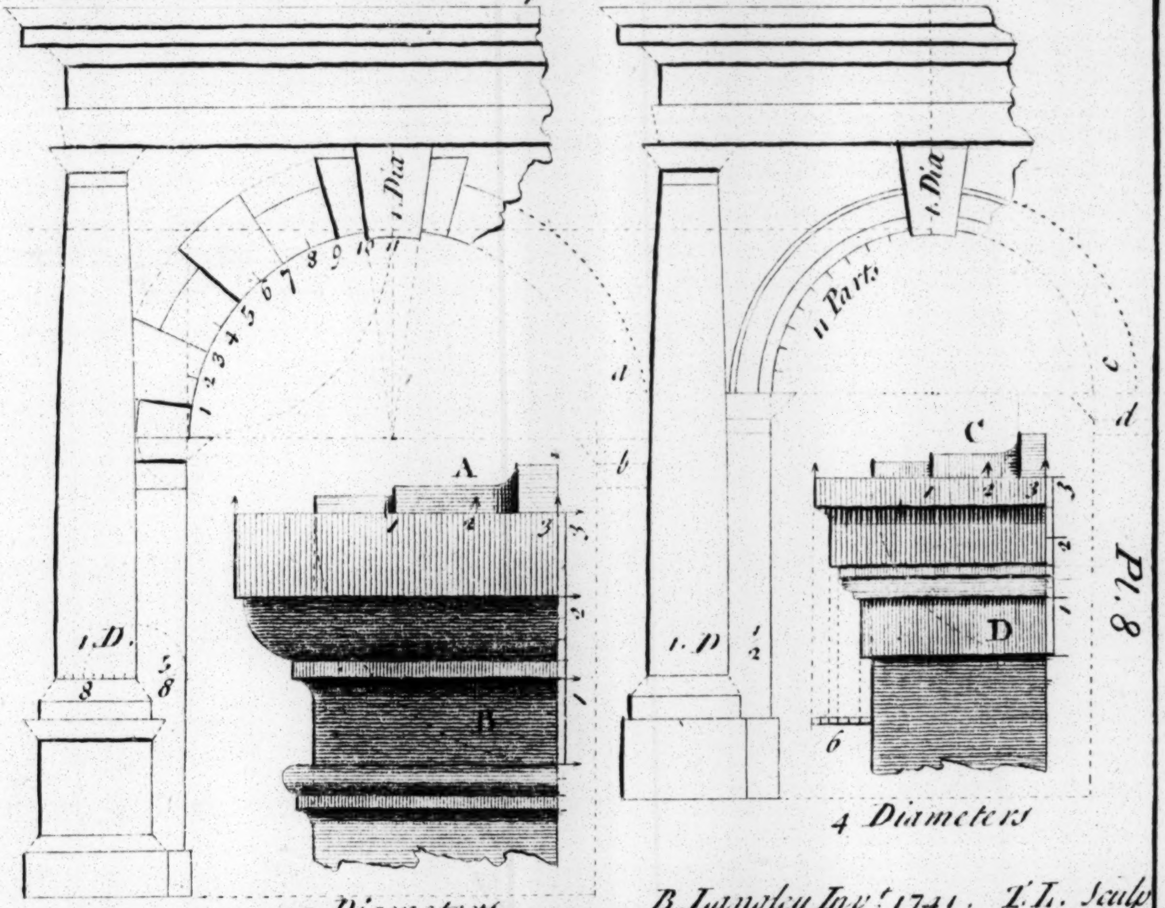


Tho. Langley sc

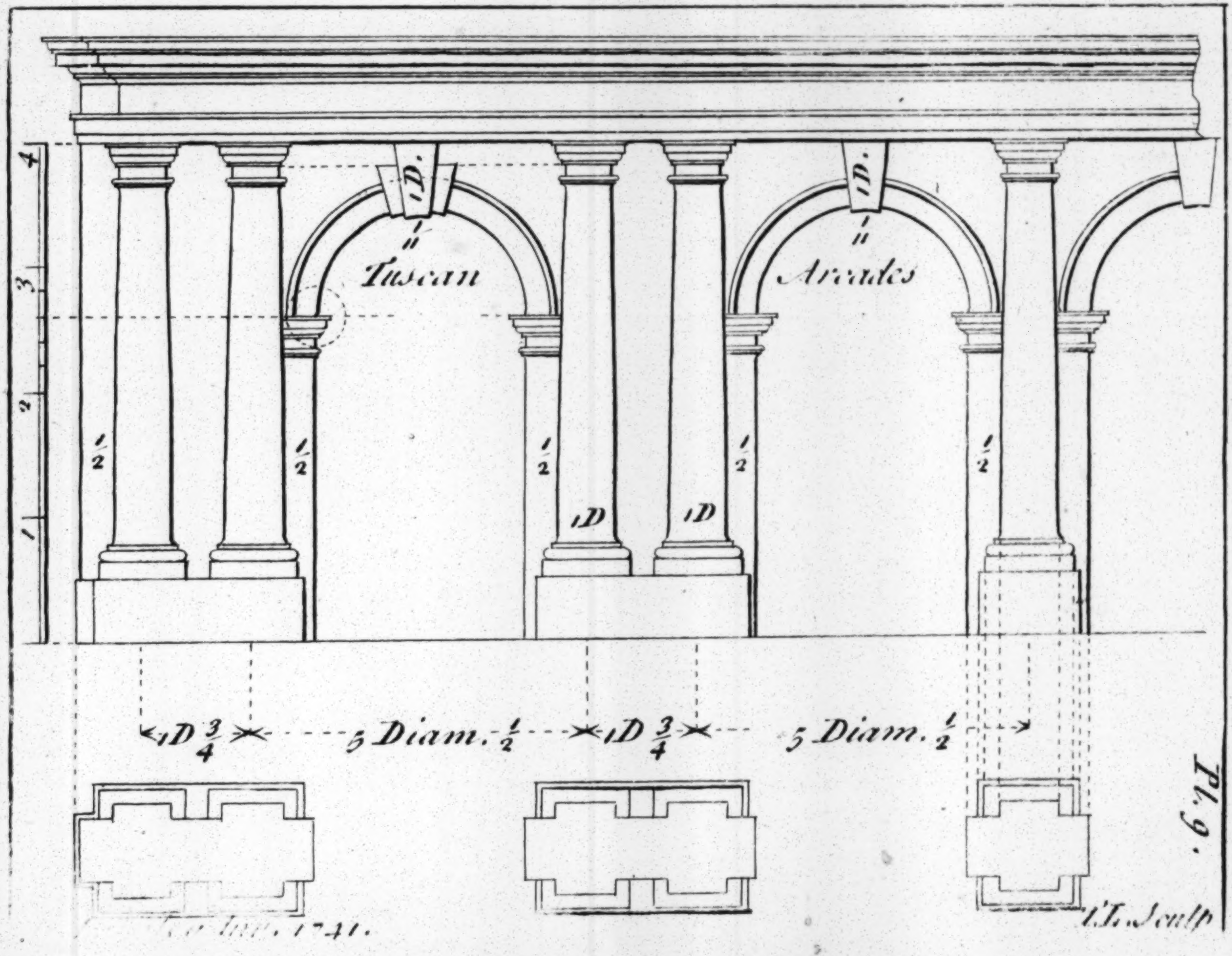
B. Langley Inv. 1741

Tuscan. Arches with their Imposts and Architraves.

Pl. 8

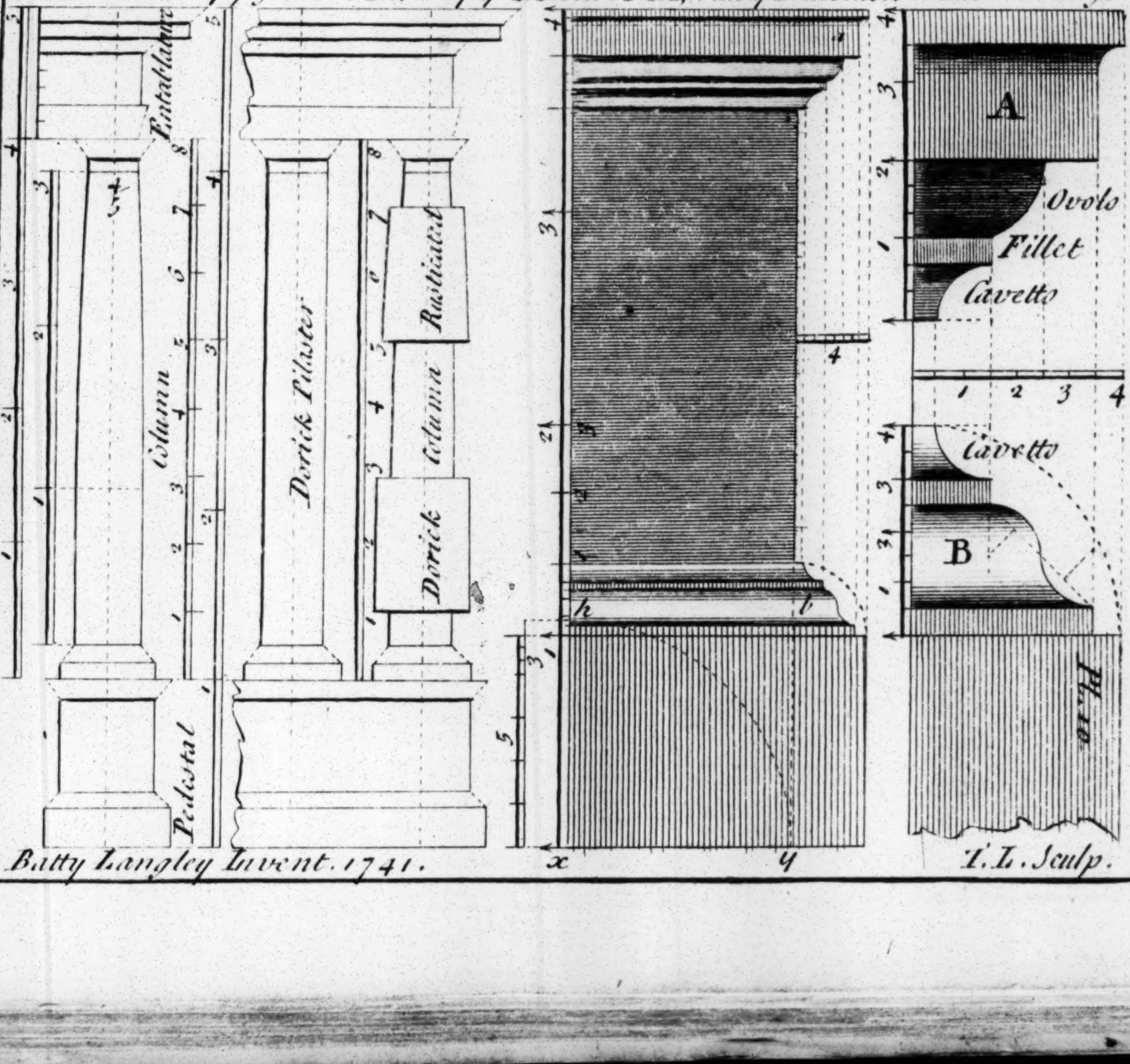


B. Langley Inv.t 1741. T.L. Sculp


Pl. 9.
Tuscan Arcades
1D.
1D.
1D
1D
$\frac{1}{2}$
1
2
3
4
1D $\frac{3}{4}$
5 Diam. $\frac{1}{2}$
1D $\frac{3}{4}$
5 Diam. $\frac{1}{2}$
Inv. 1741.
I.T. Sculp

The Divisions of y^e general Parts of y^e Dorick Order *with y^e Pedestal & its Parts at large*

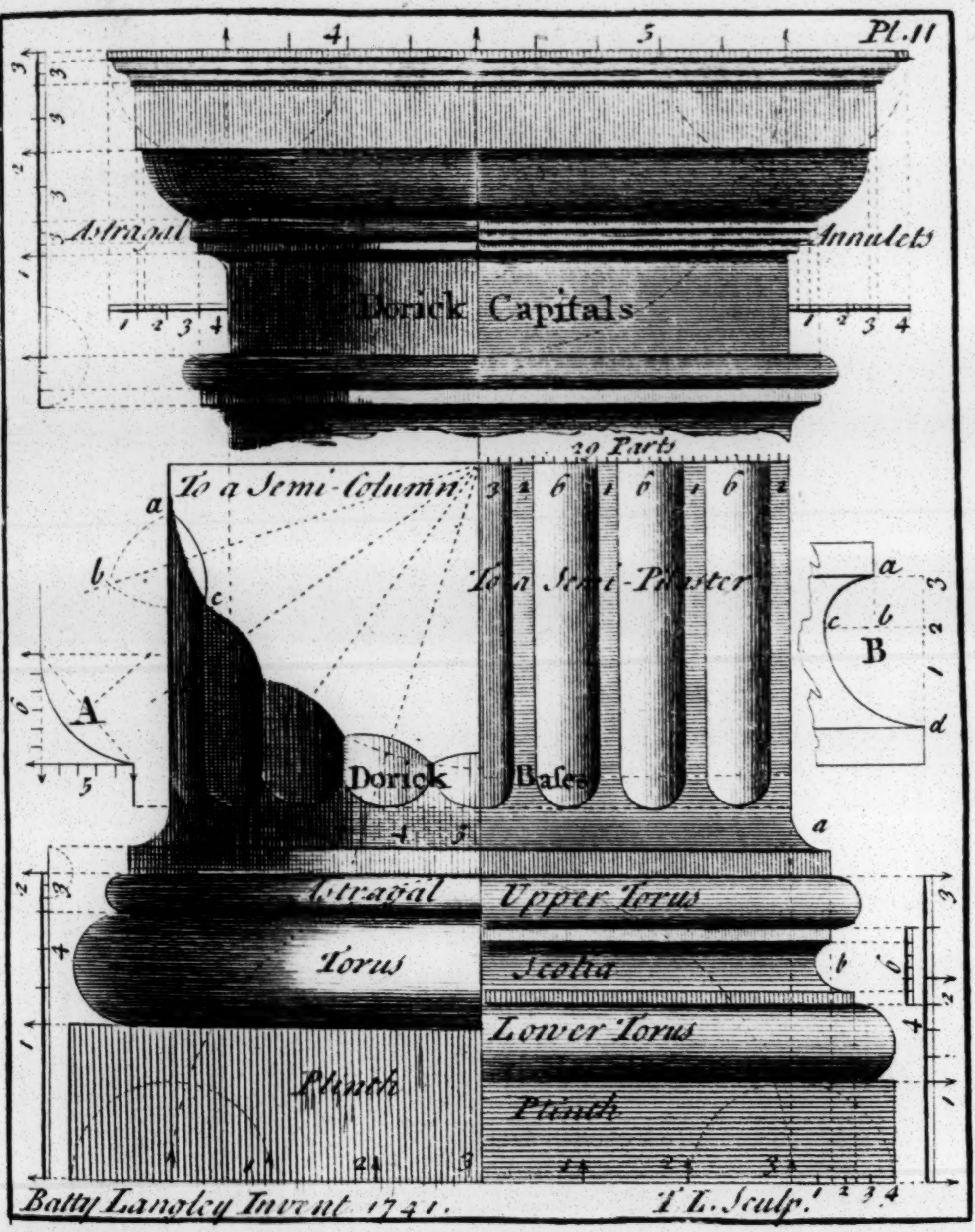
The Divisions of ye general Parts of ye **Dorick Order**, with ye Pedestal & its Parts at large.



Batty Langley Invent. 1741.

T. L. Sculp.

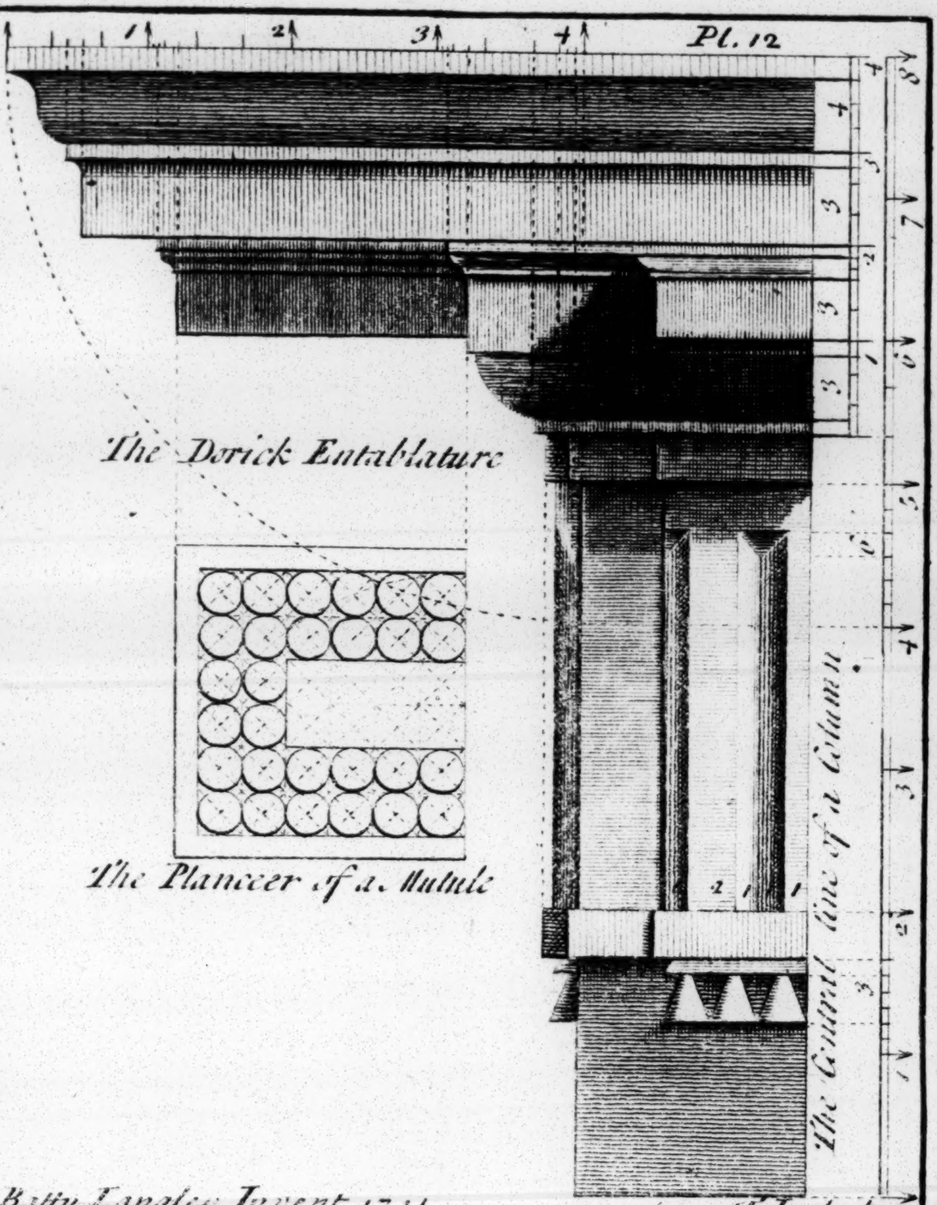
Pl. 11



Batty Langley Invent 1741.

T L. Sculp.

Pl. 12



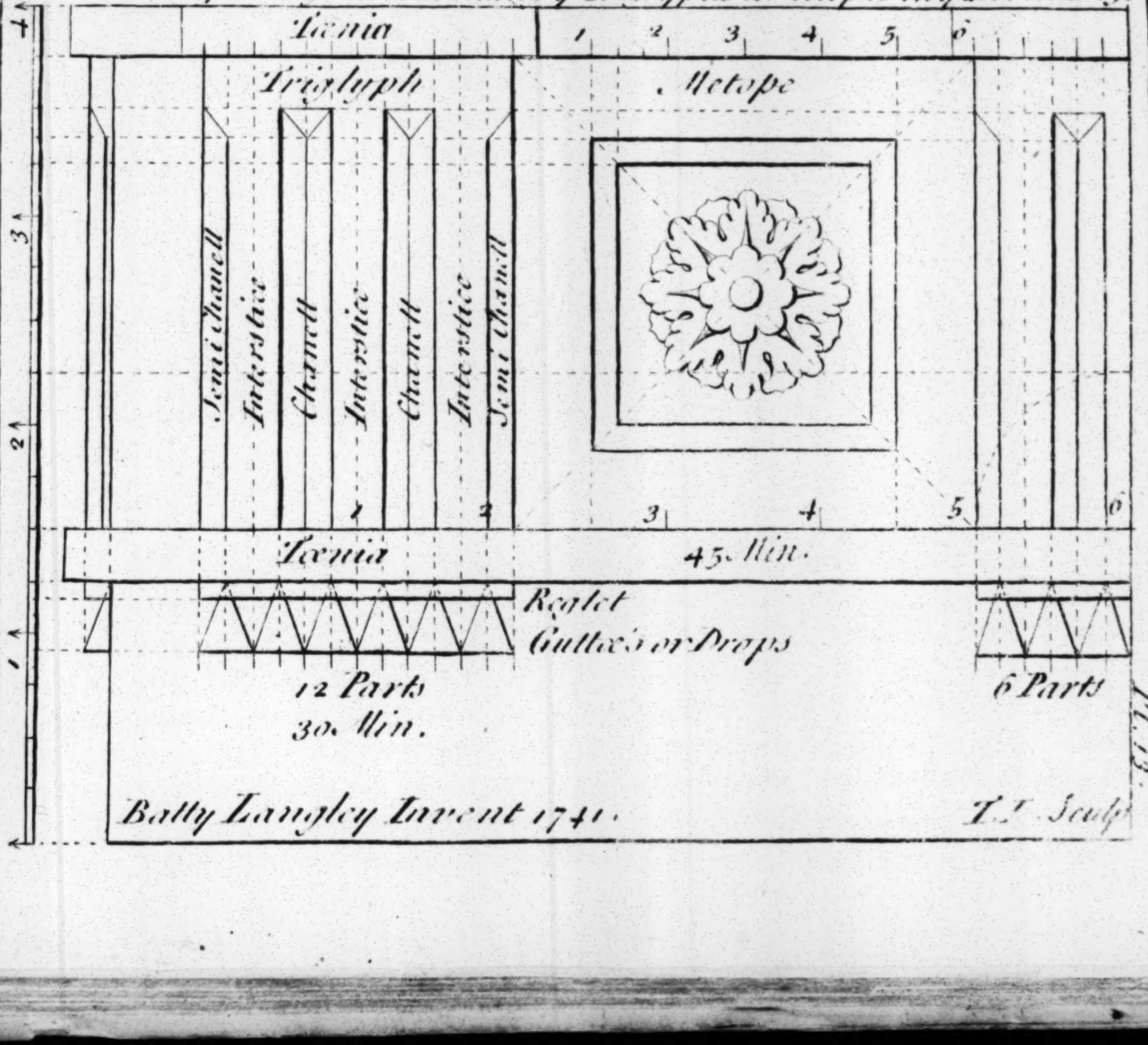
The Dorick Entablature

The Planceer of a Mutule

Batty Langley Invent. 1741.

T.L. Sculp.

The manner of setting out & dividing ye Triglyphs & Metopes in ye Dorick Frize

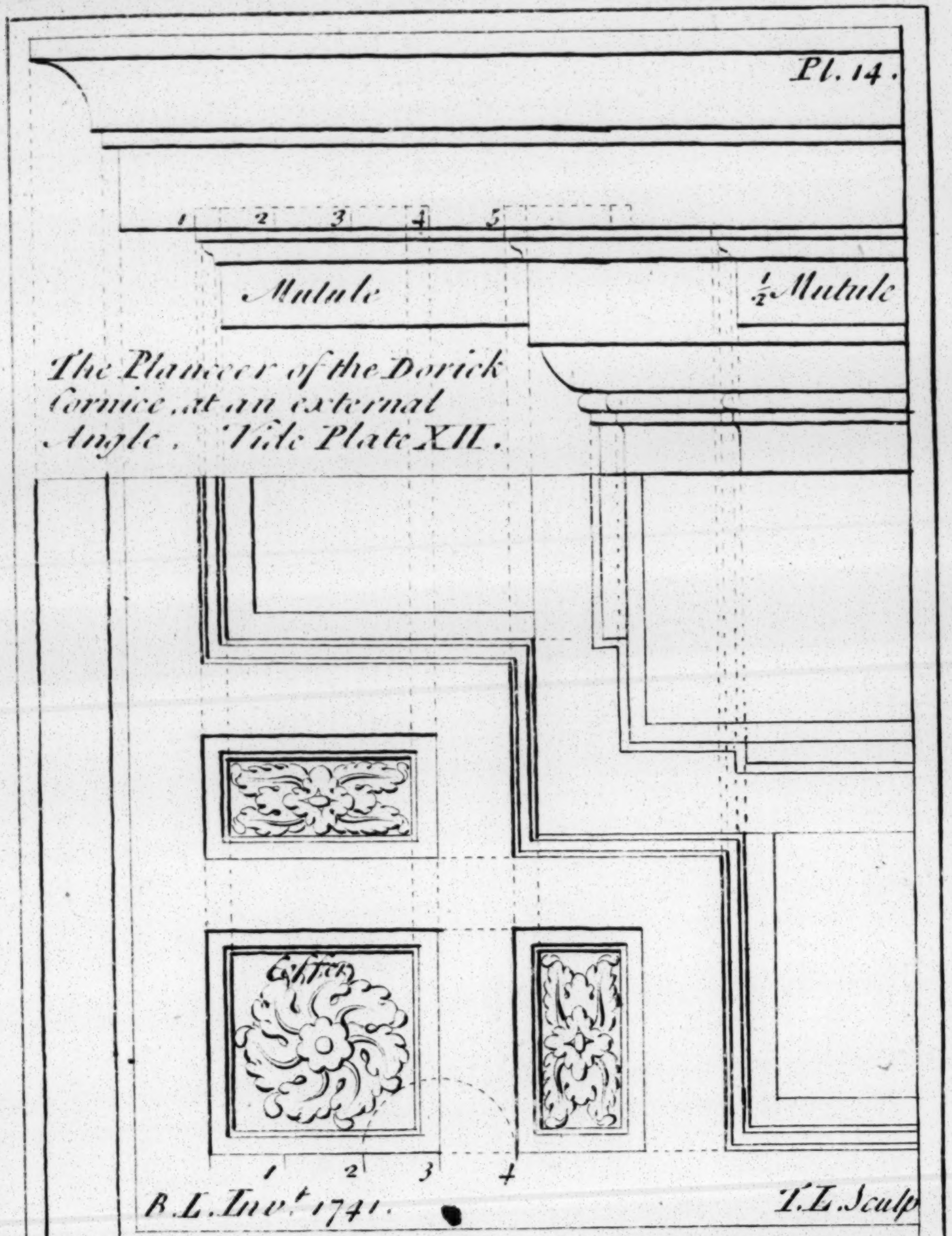


Batty Langley Invent 1741.

T. L. Sculp

Pl. 13.

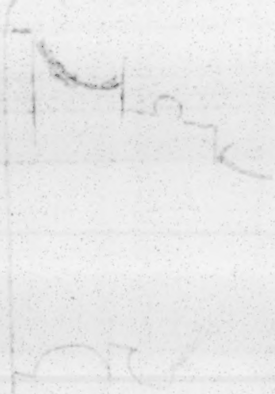
Pl. 14.



The Planceer of the Dorick Cornice, at an external Angle. Vide Plate XII.

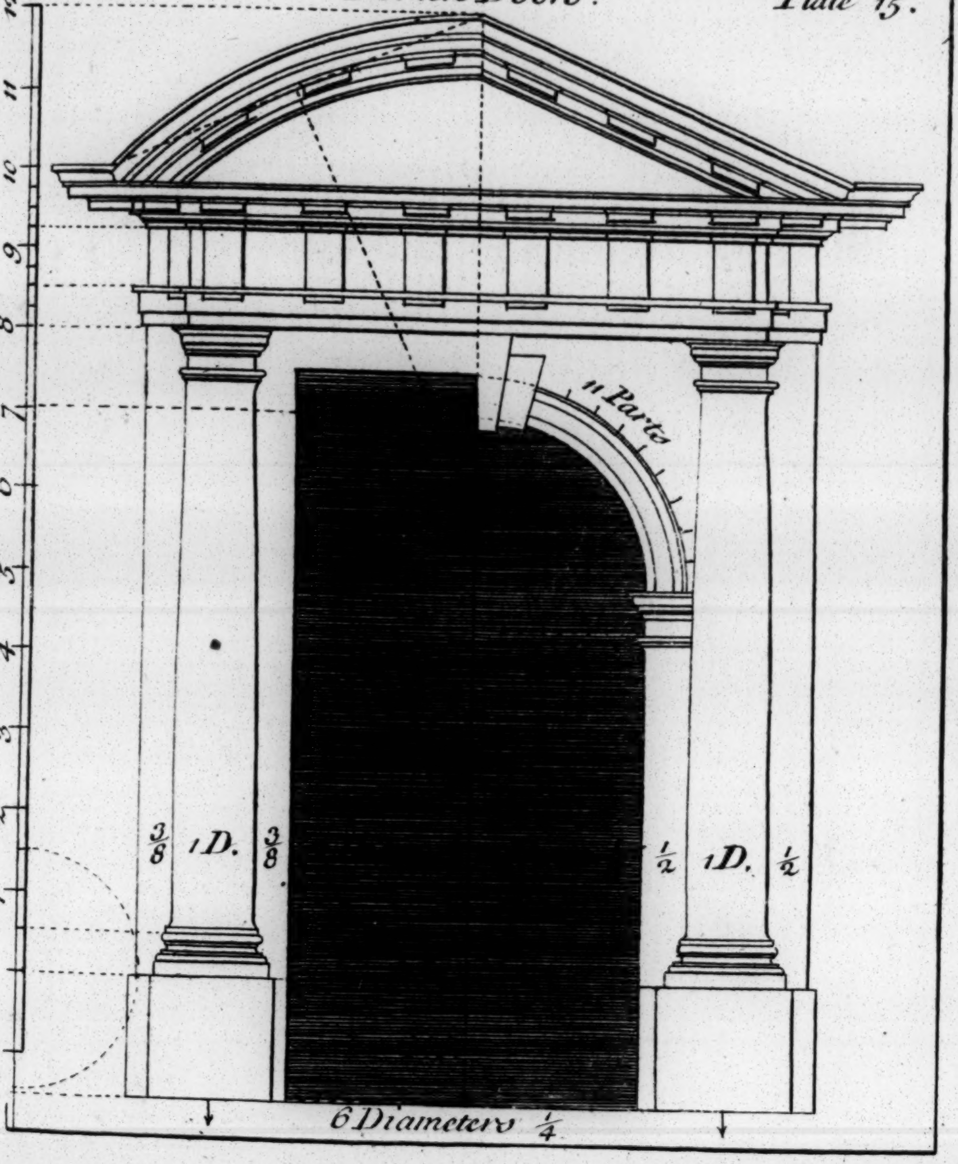
B. L. Invt. 1741.

T. L. Sculp

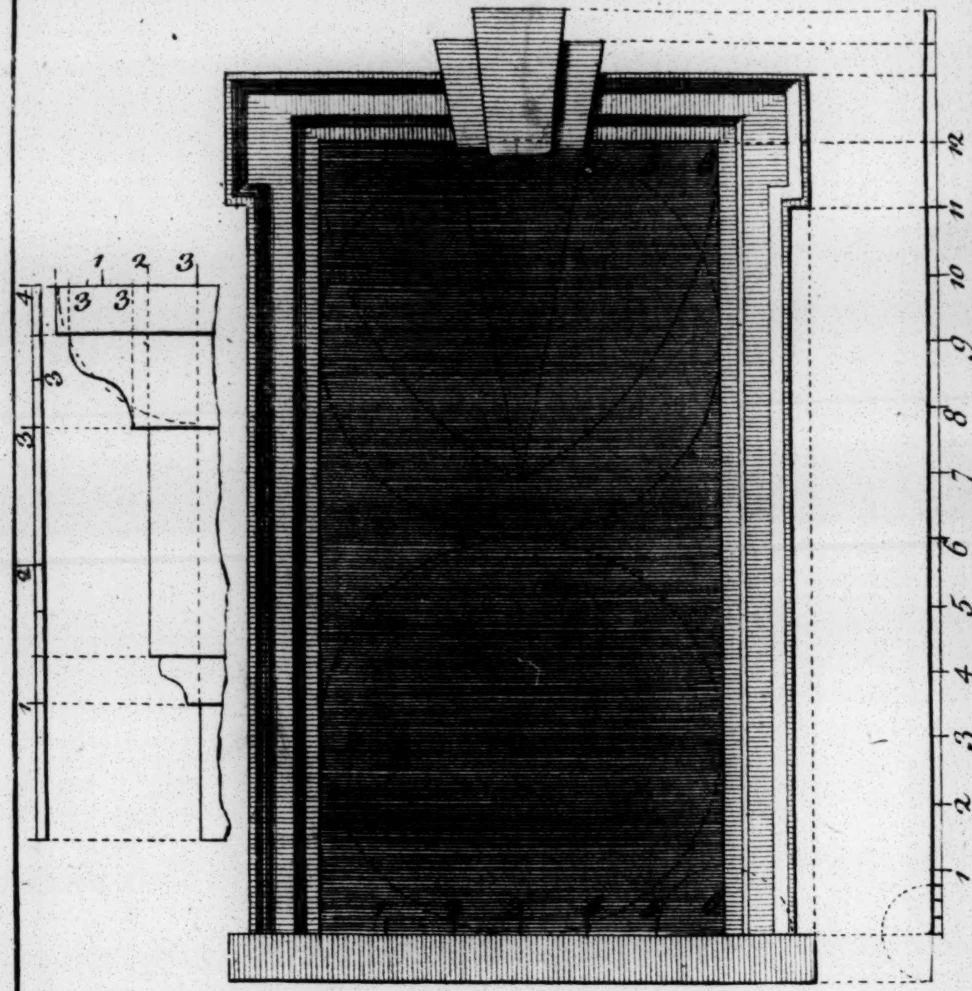


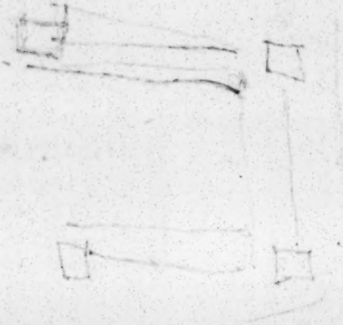
Dorick Doors.

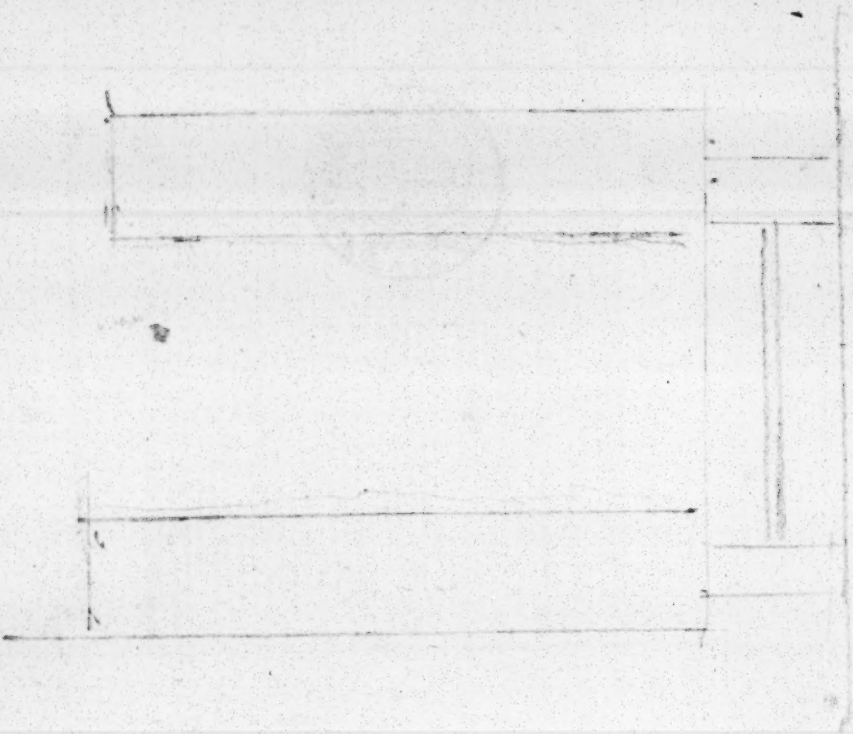
Plate 15.



Dorick Window. Plate 16.

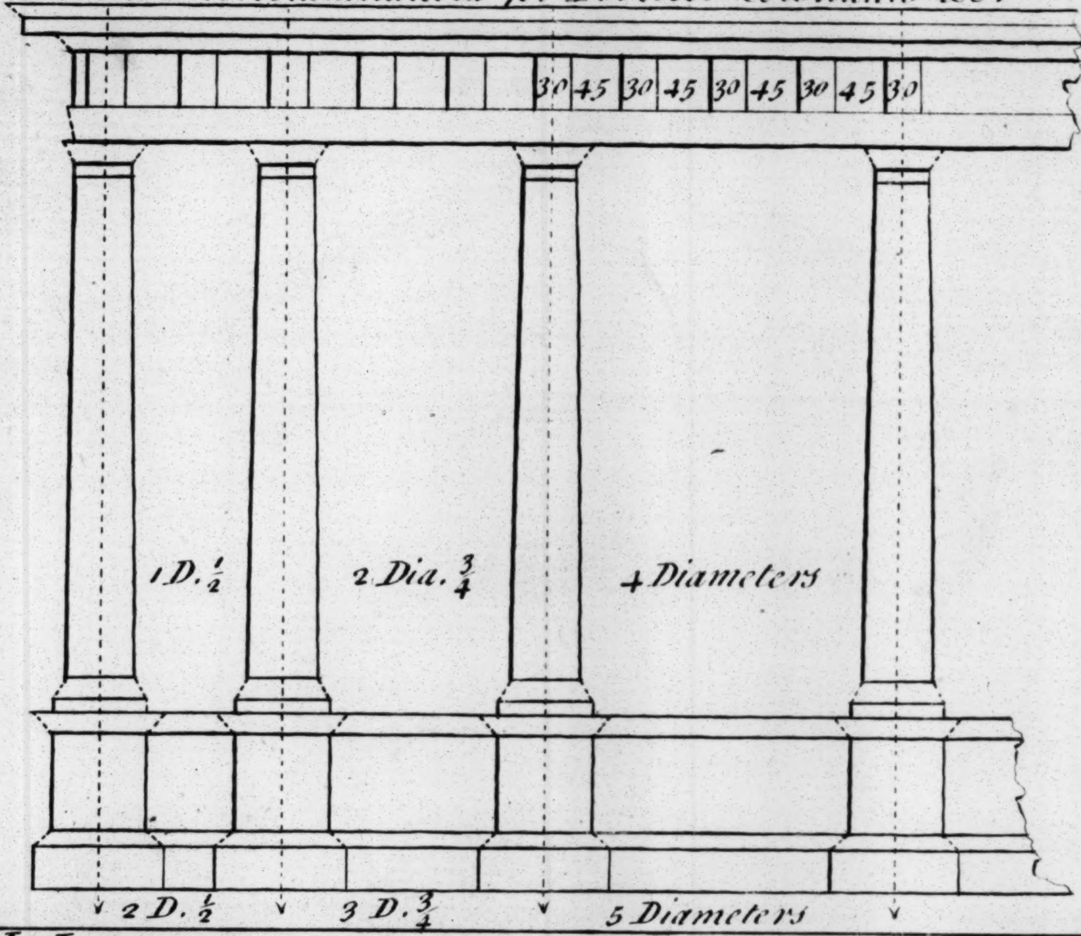






Dorick Intercolumnations for Portico's Colonades &c.

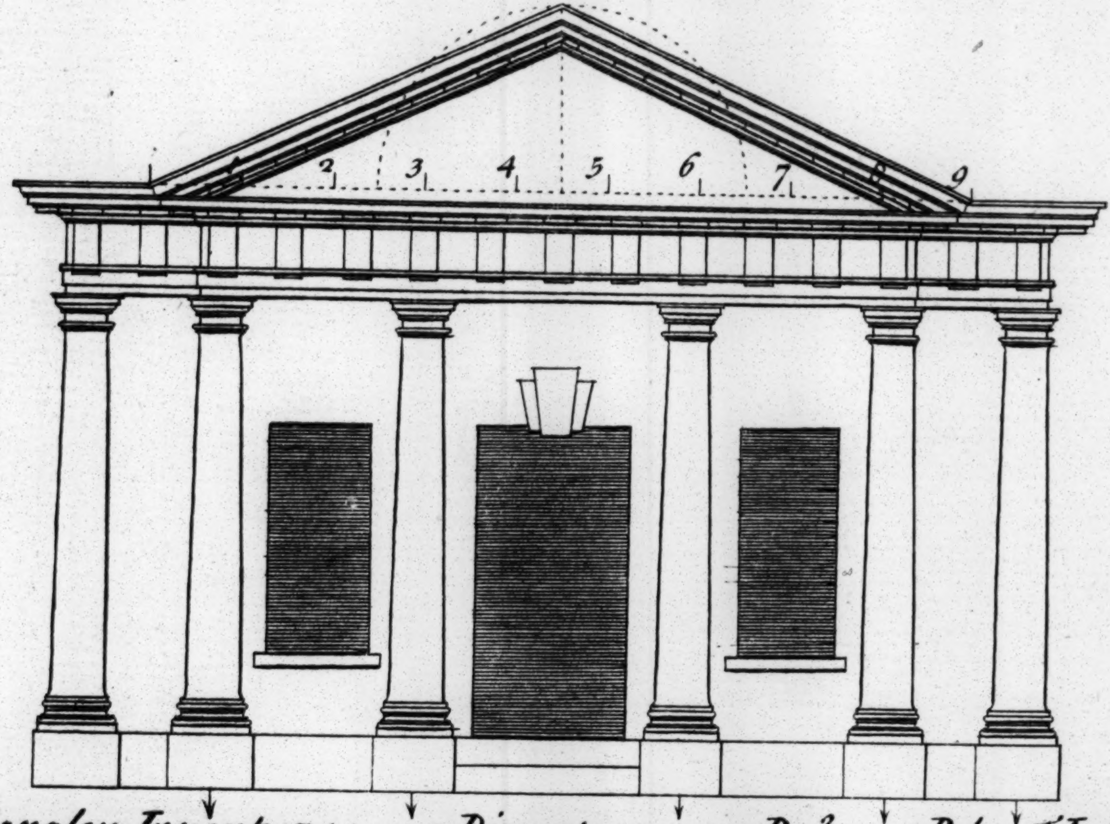
Pl. 17.



B. L. Invent 1741.

T. L. Sculp.

Dorick Portico.

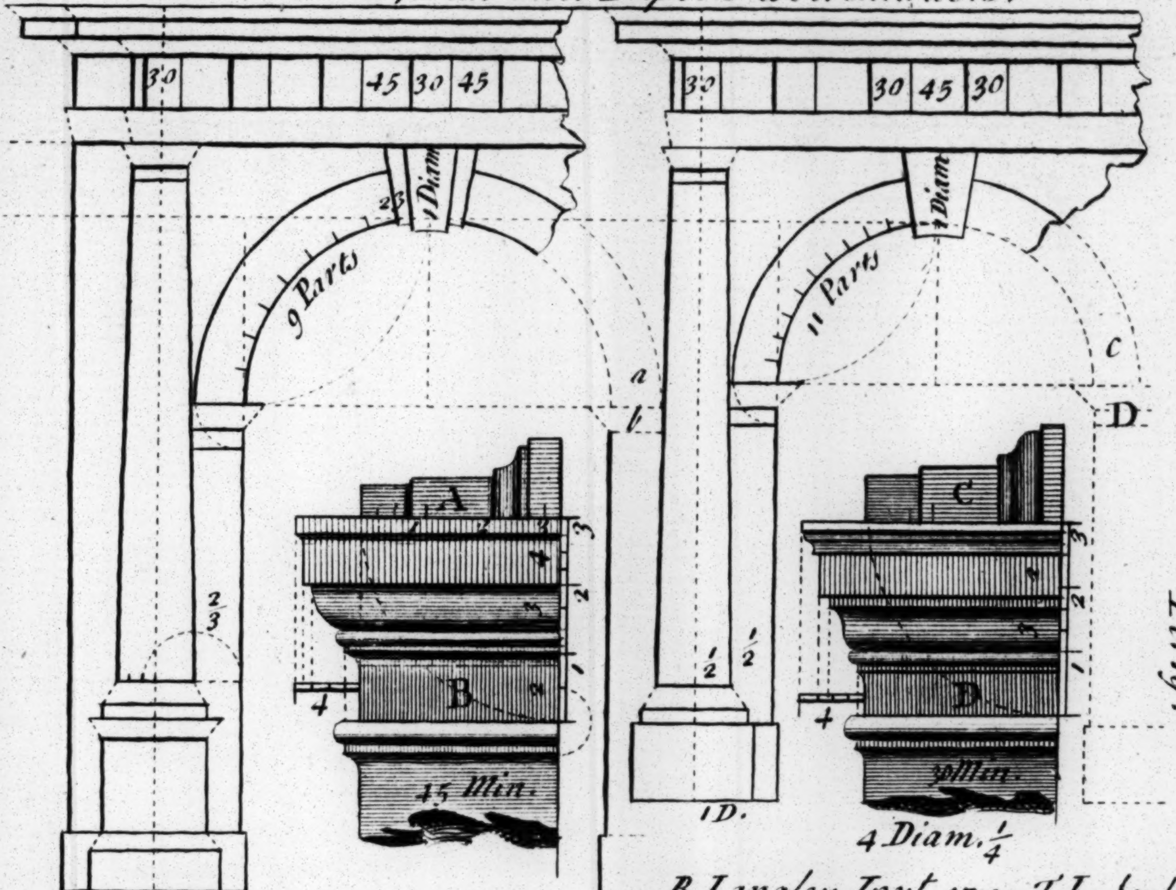


B. Langley Invent 1741.

T.L. Sculp

Pl. 18.

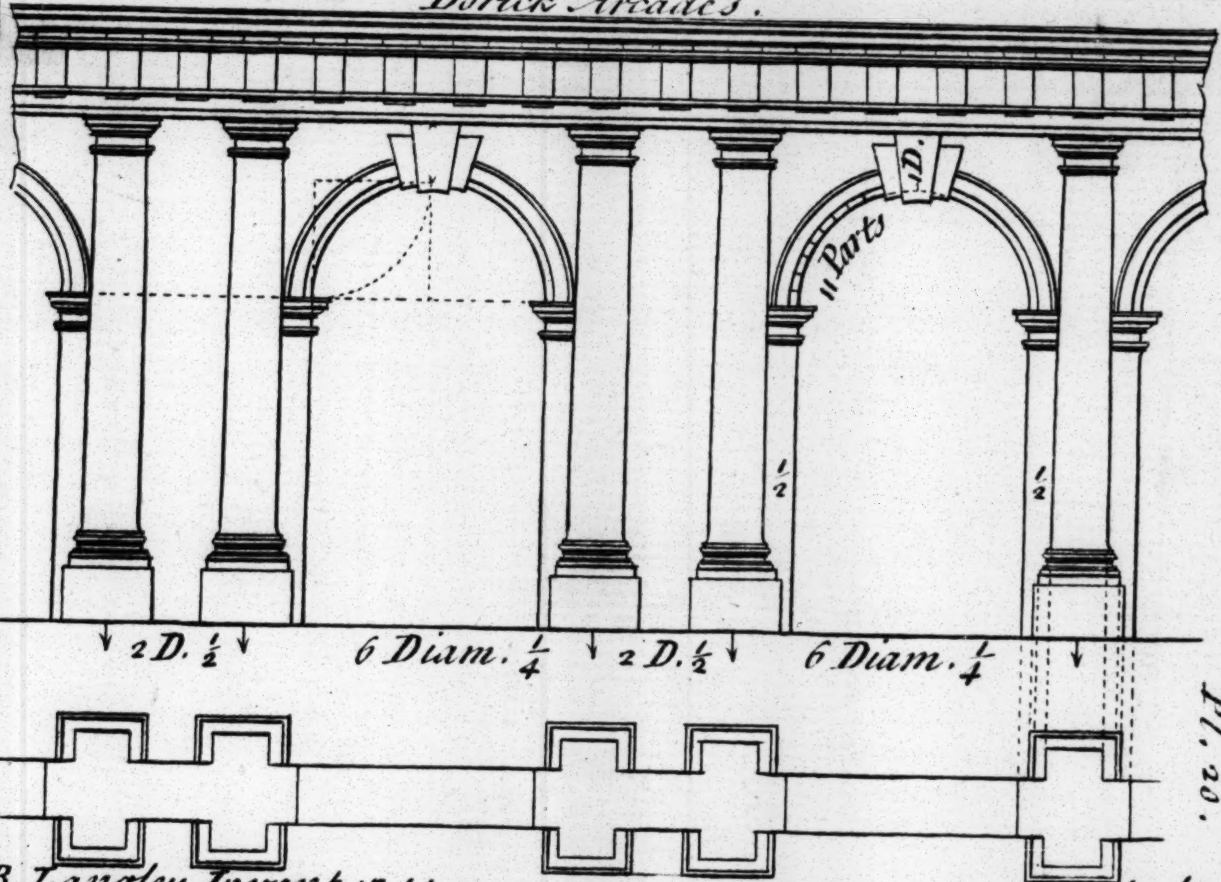
Dorick Arches, with their Imposts & Architraves.



Pl. 19.

B. Langley Invt 1741. T.L. Sculp.

Dorrick Arcade's.

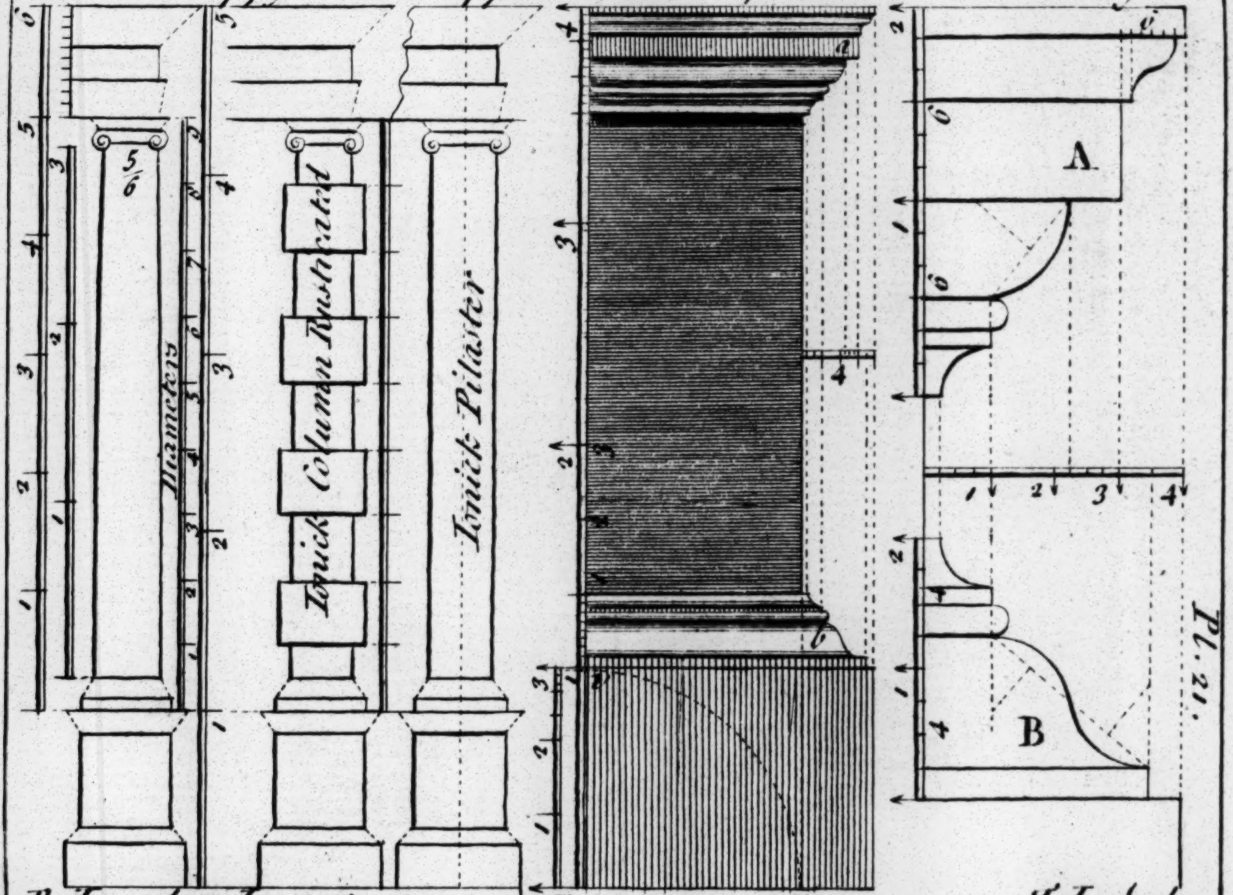


B. Langley Invent 1741.

T.L. Sculp.

The Divisions of yͤ general Parts of yͤ Ionick Order wᵗʰ. yͤ Pedestal & its Parts at large.

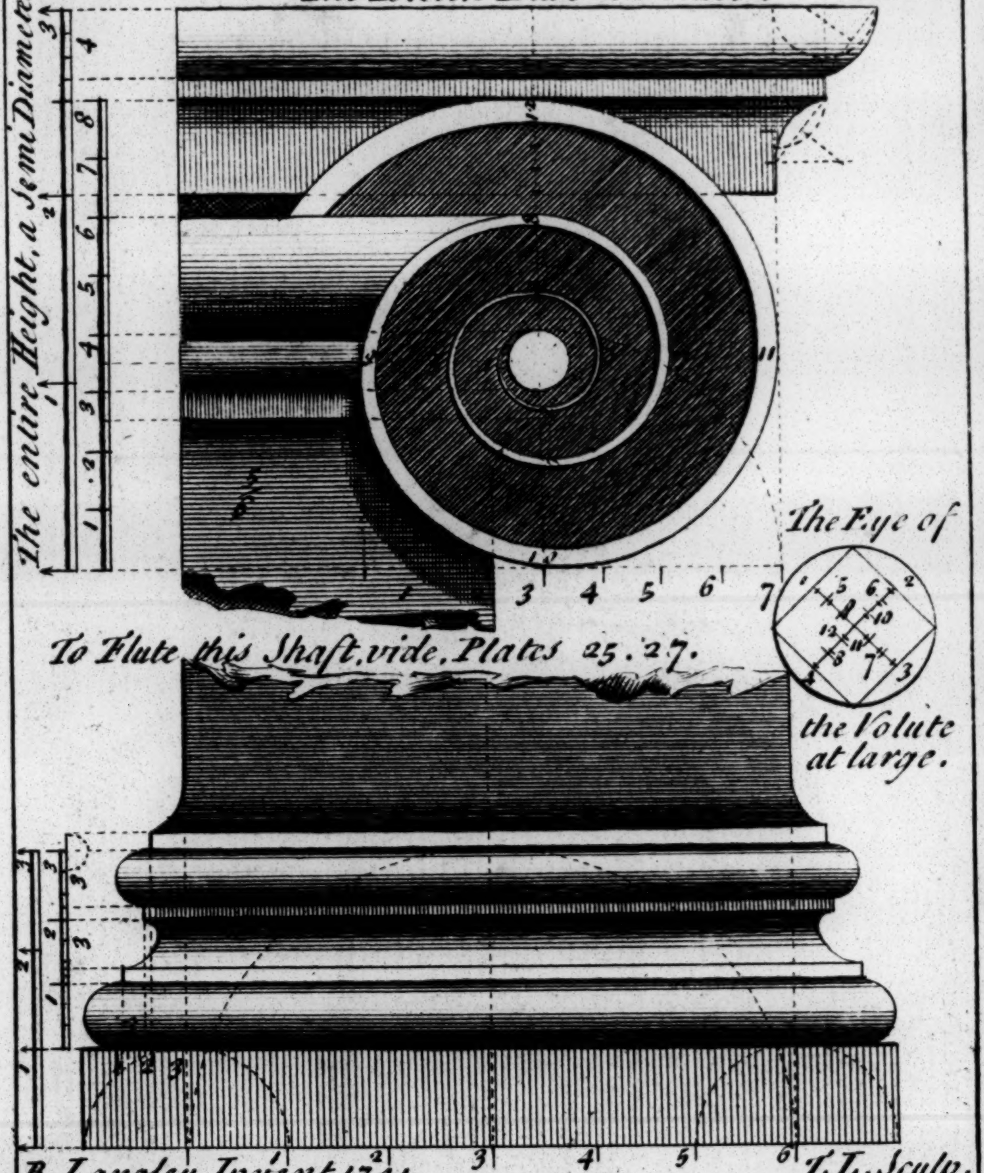
Pl. 21.



B. Langley Invent. 1741.

T. L. Sculp.

The Ionick Base & Volute. Pl. 22.

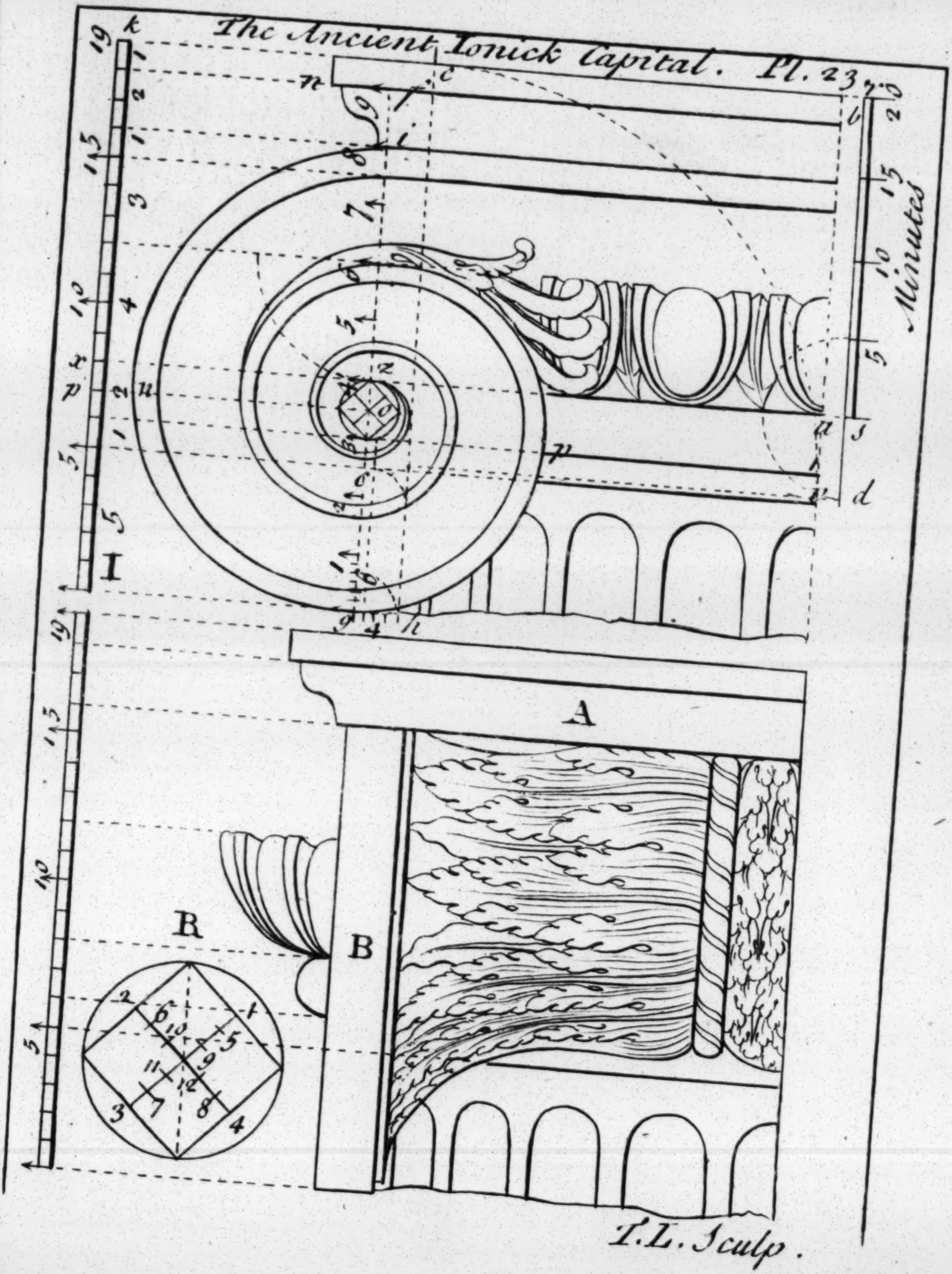


To Flute this Shaft, vide, Plates 25. 27.

B. Langley Invent 1741.

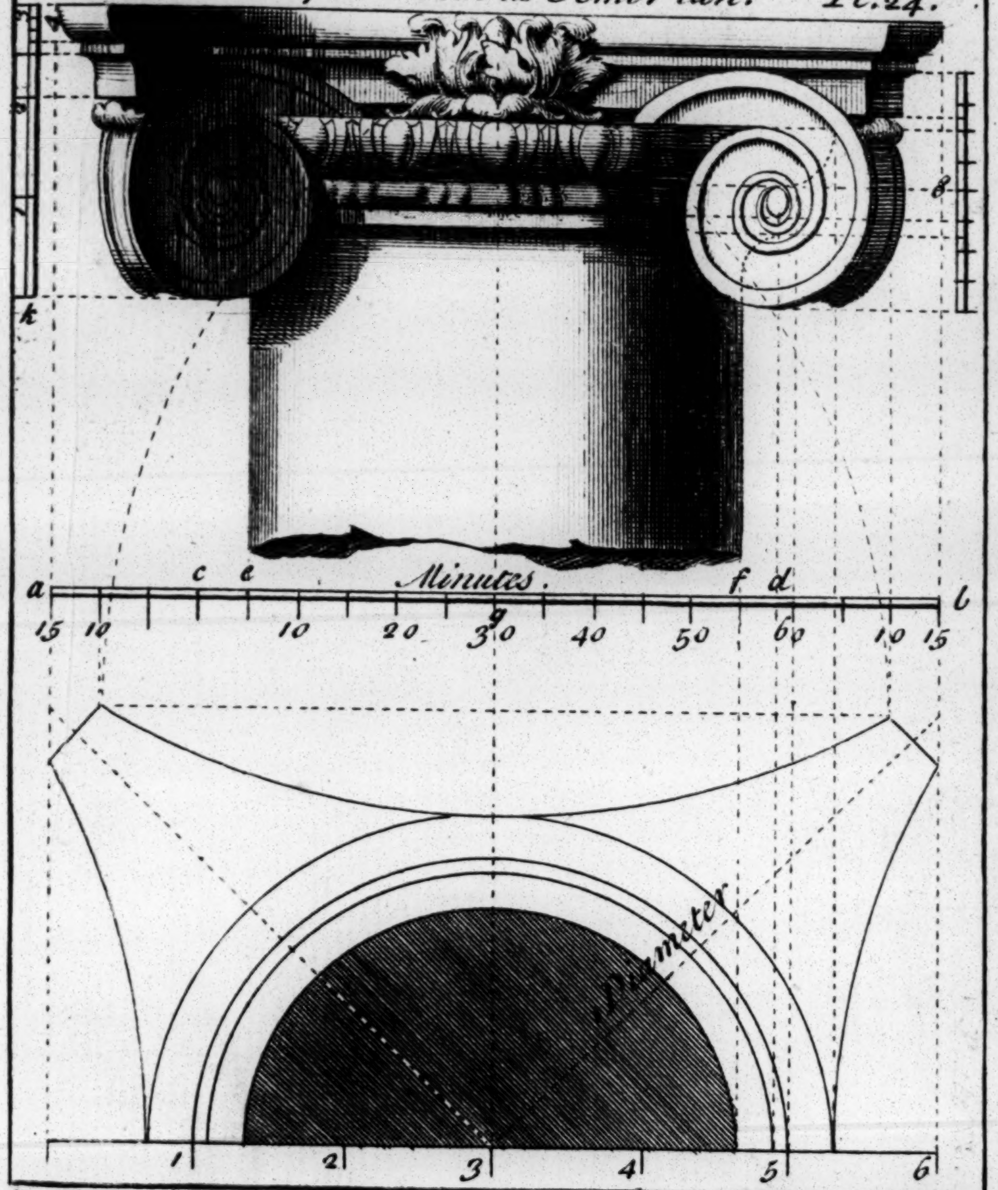
T. L. Sculp.

The Ancient Ionick Capital. Pl. 23



T. L. Sculp.

i The Ionick Capital with its Semi Plan. Pl. 24.

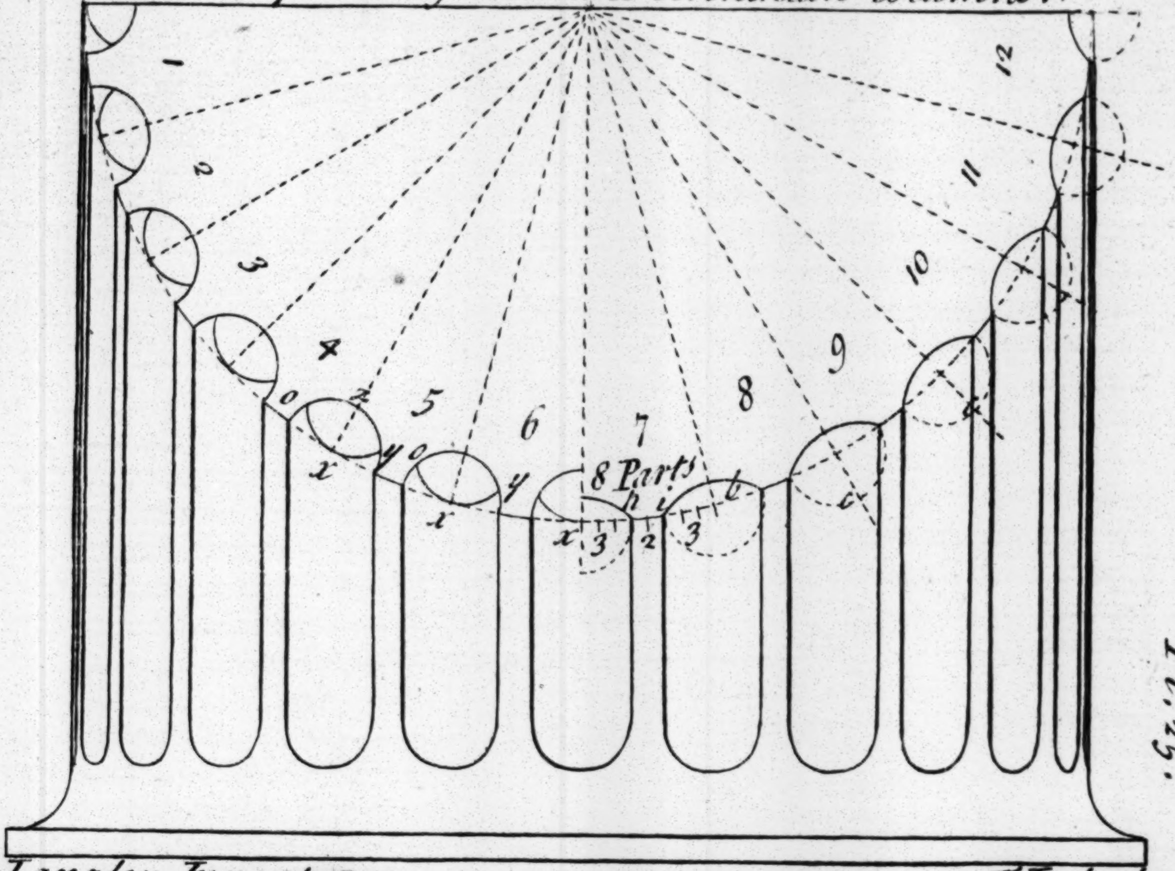


B. Langley Invent 1741.

Tho: L. Sculp.

Pl. 25.

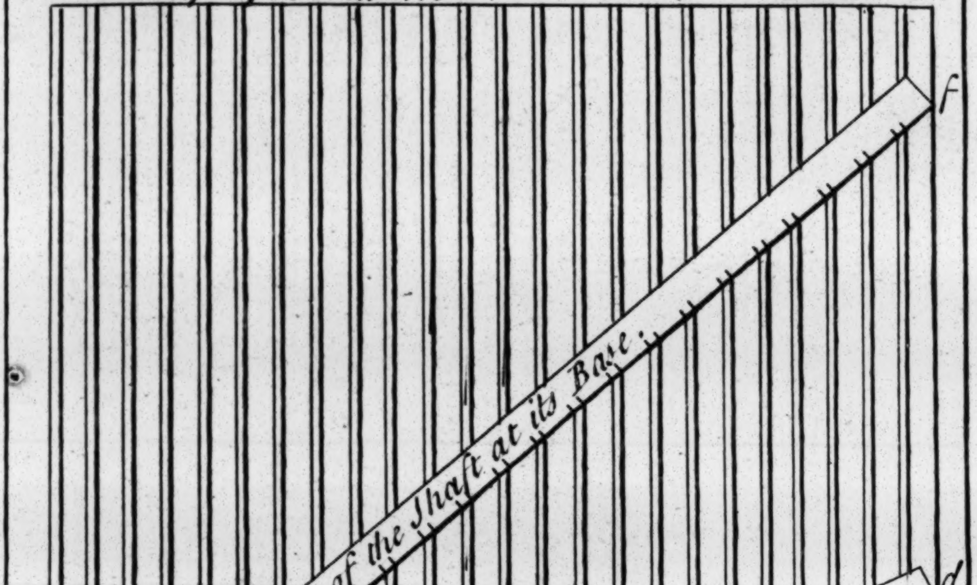
The manner of Fluting Ionick & Corinthian Columns.



B. Langley Invent 1741.

T.L. Sculp.

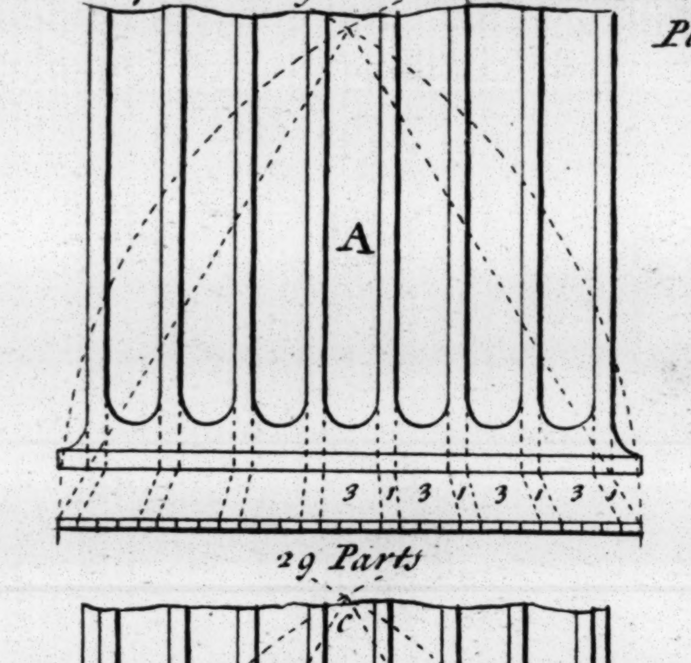
The manner of tranſferring the Flutes & Fillets on the Shaſt of a Column — Plate 26.


f
d
e
c
The Girt of the Shaſt at its Baſe.
The Girt of the Shaſt at its Astragal.
a
1
3
1
3
1
3
b

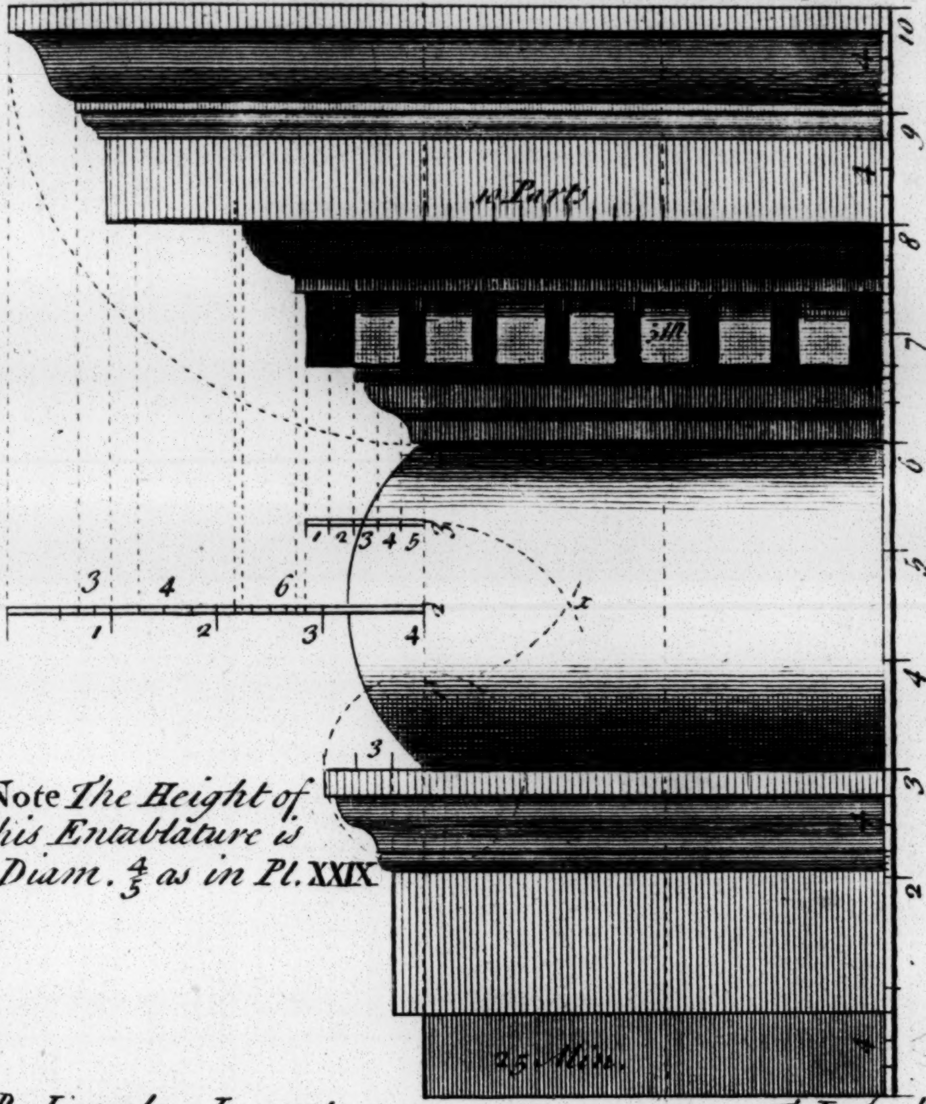
Divide a given length, leſs than y Circumference in 24 p^ts & each part in 4 then 1 is a Fillet, & 3 is a Flute —

The Manner of dividing, the Flutes & Fillets of Pilast.

Plate 27.



The Ionick Dentule Entablature. Pl. 28

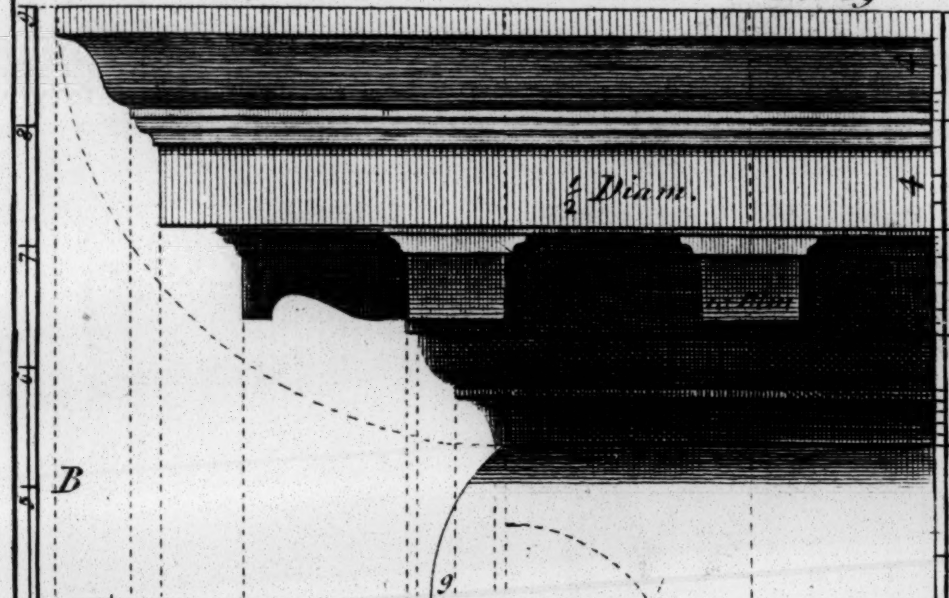


Note The Height of
this Entablature is
1 Diam. $\frac{4}{5}$ as in Pl. XXIX

B. Langley Invent 1741.

T. L. Sculp

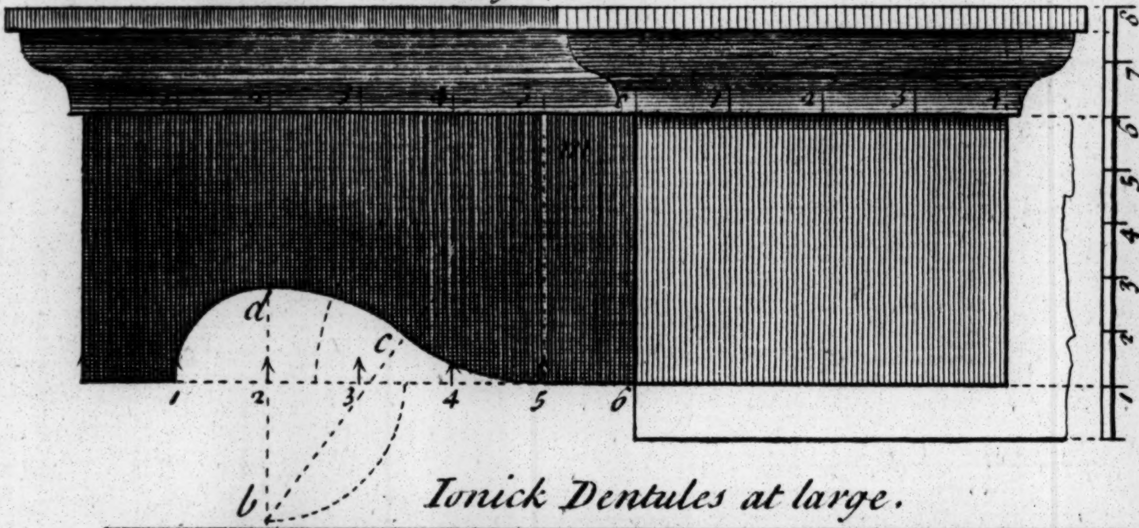
The Ionick Modilion Entablature. Pl. 29.



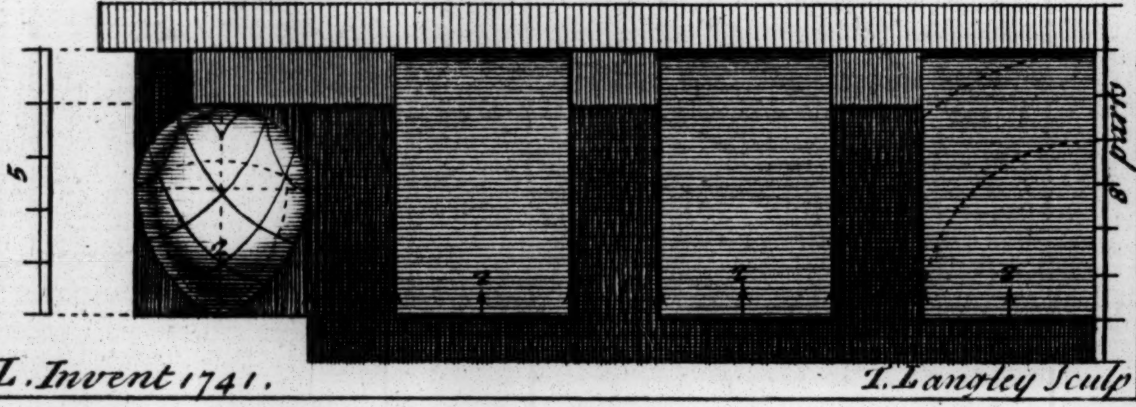
Note. Five ninths of yᵉ Entablatures Height as B.A. is equal to the Diam. of yᵉ Column. B.L. Invent 1741. T.L. Scul

Plate 30.

Ionick Modilion at large.

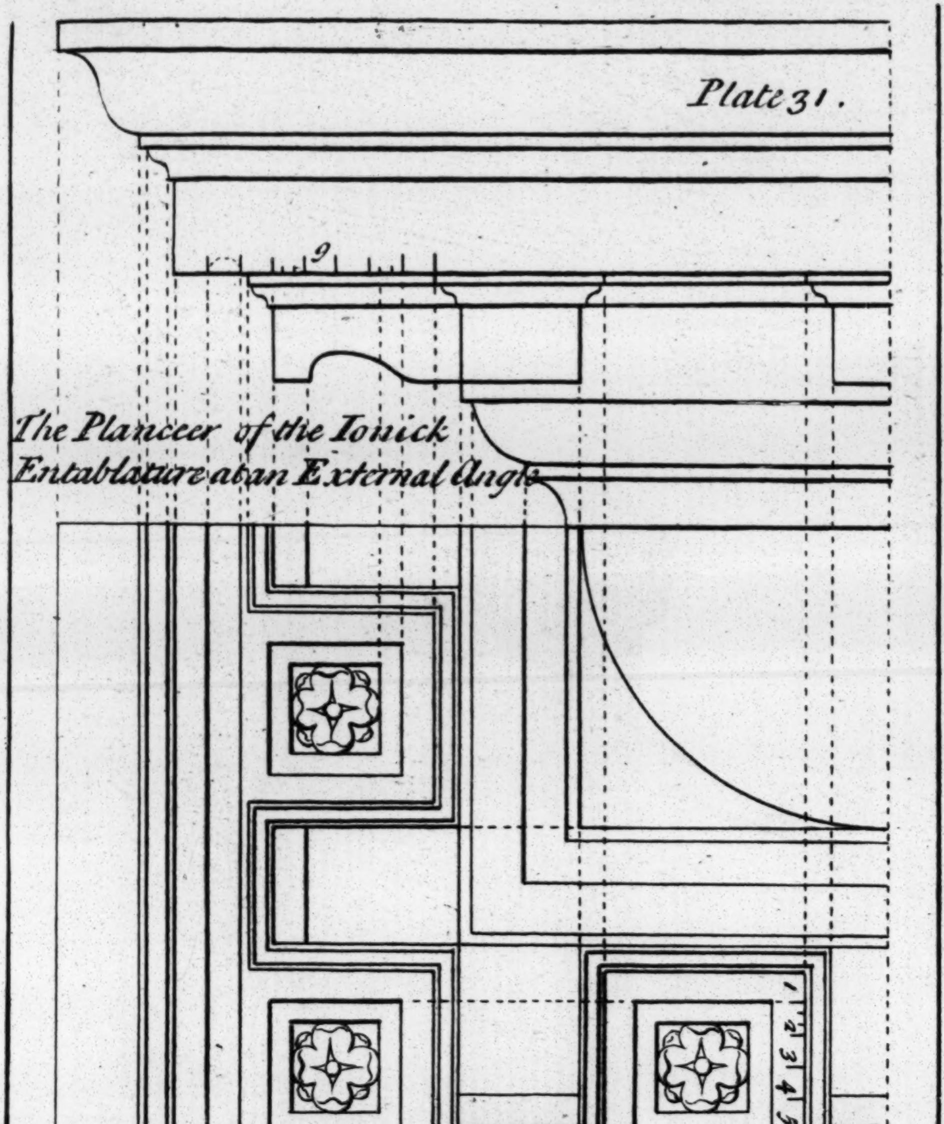


Ionick Dentules at large.



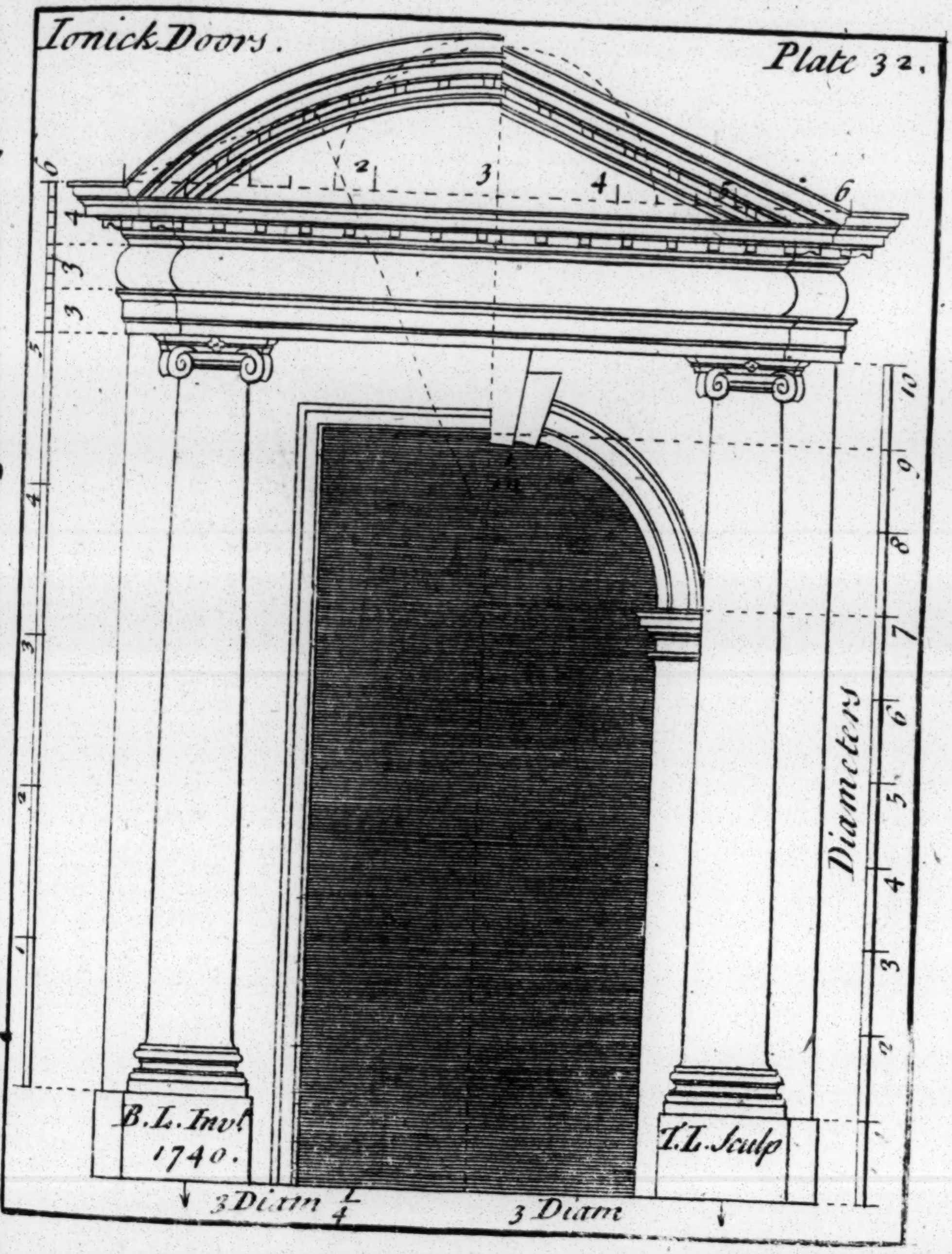
B.L. Invent 1741. T. Langley Sculp

Plate 31.



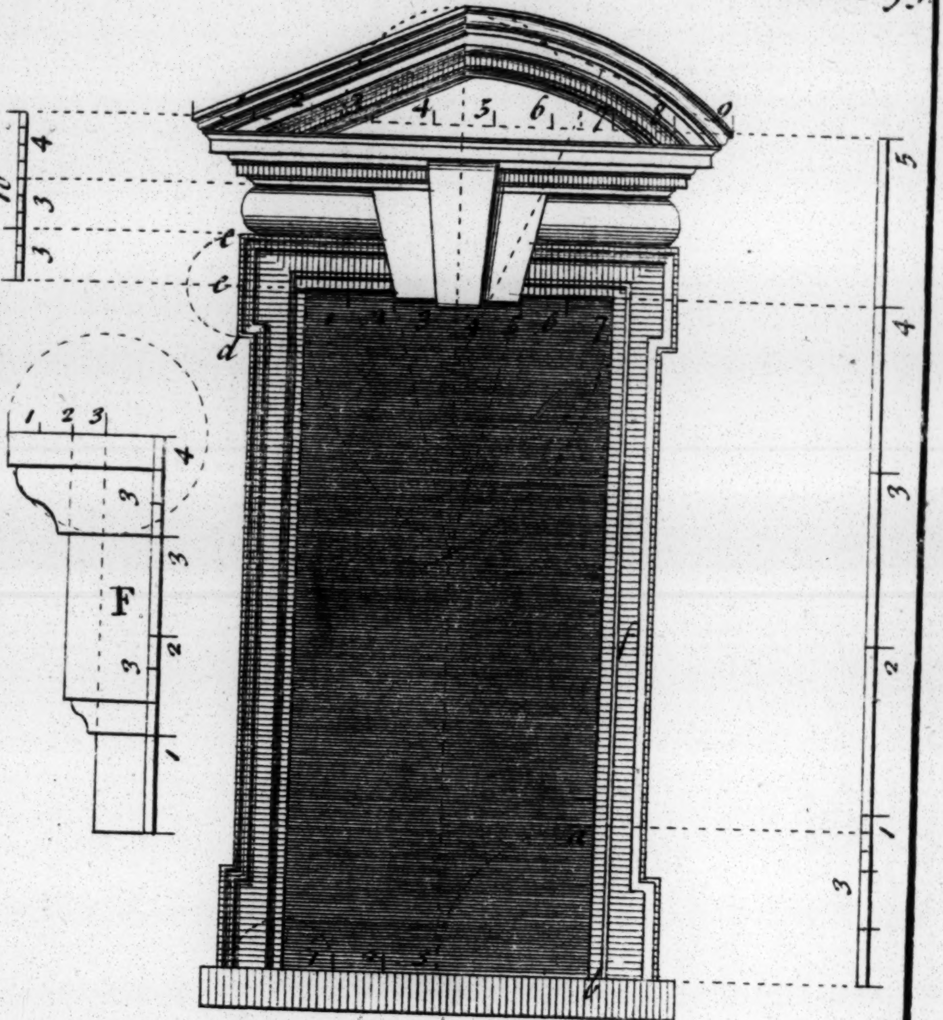
The Planceer of the Ionick Entablature at an External Angle

Ionick Doors. *Plate 32.*



Ionick Window.

Plate 33.

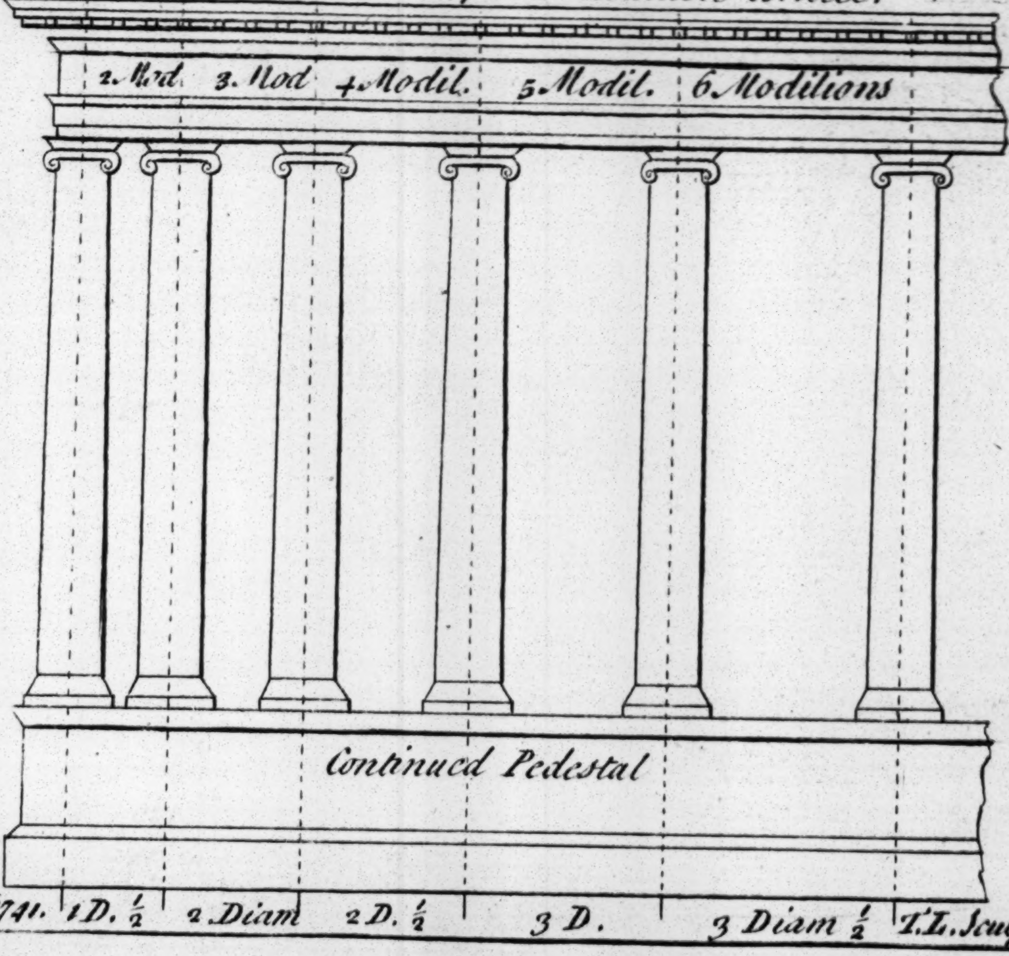


B. Langley Invent 1741.

T.L. Sculp.

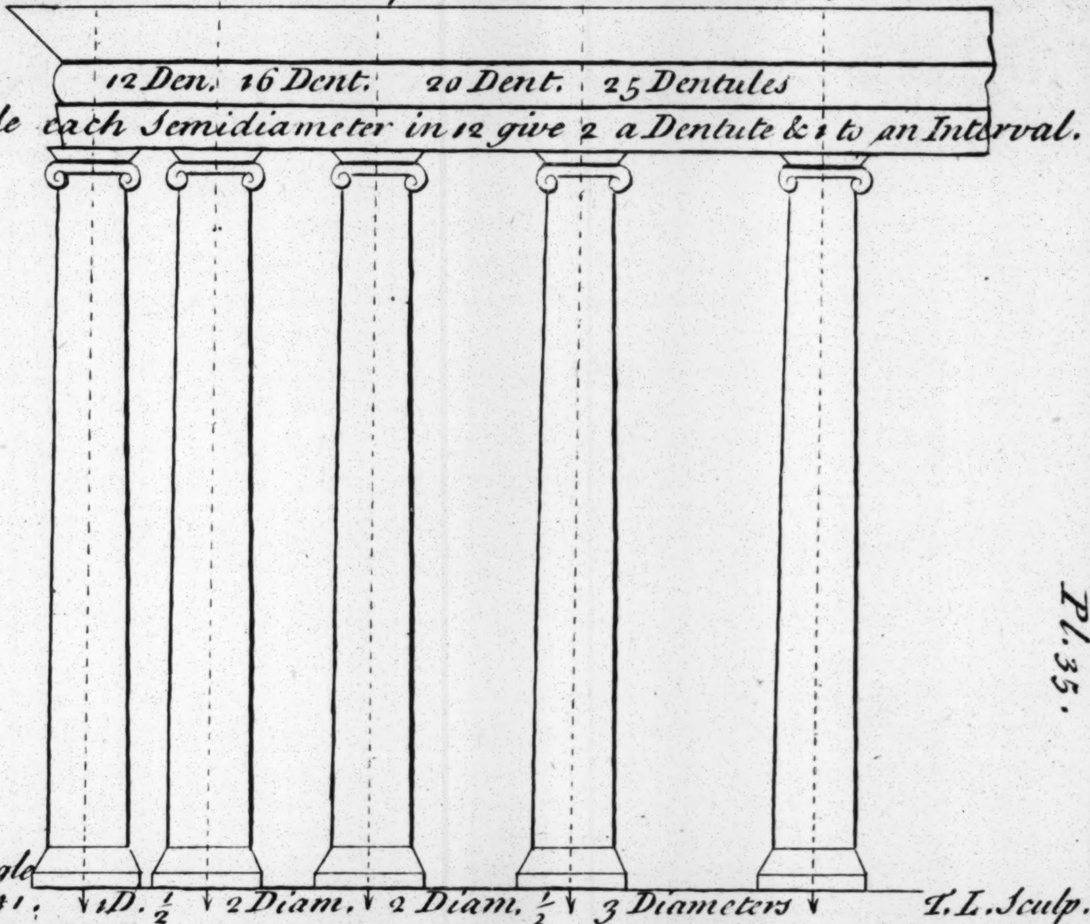
Pl. 34.

Ionick Intercolumnations, for a Modilion Cornice.



B.I. Inv.t 1741. T.L. Sculp.

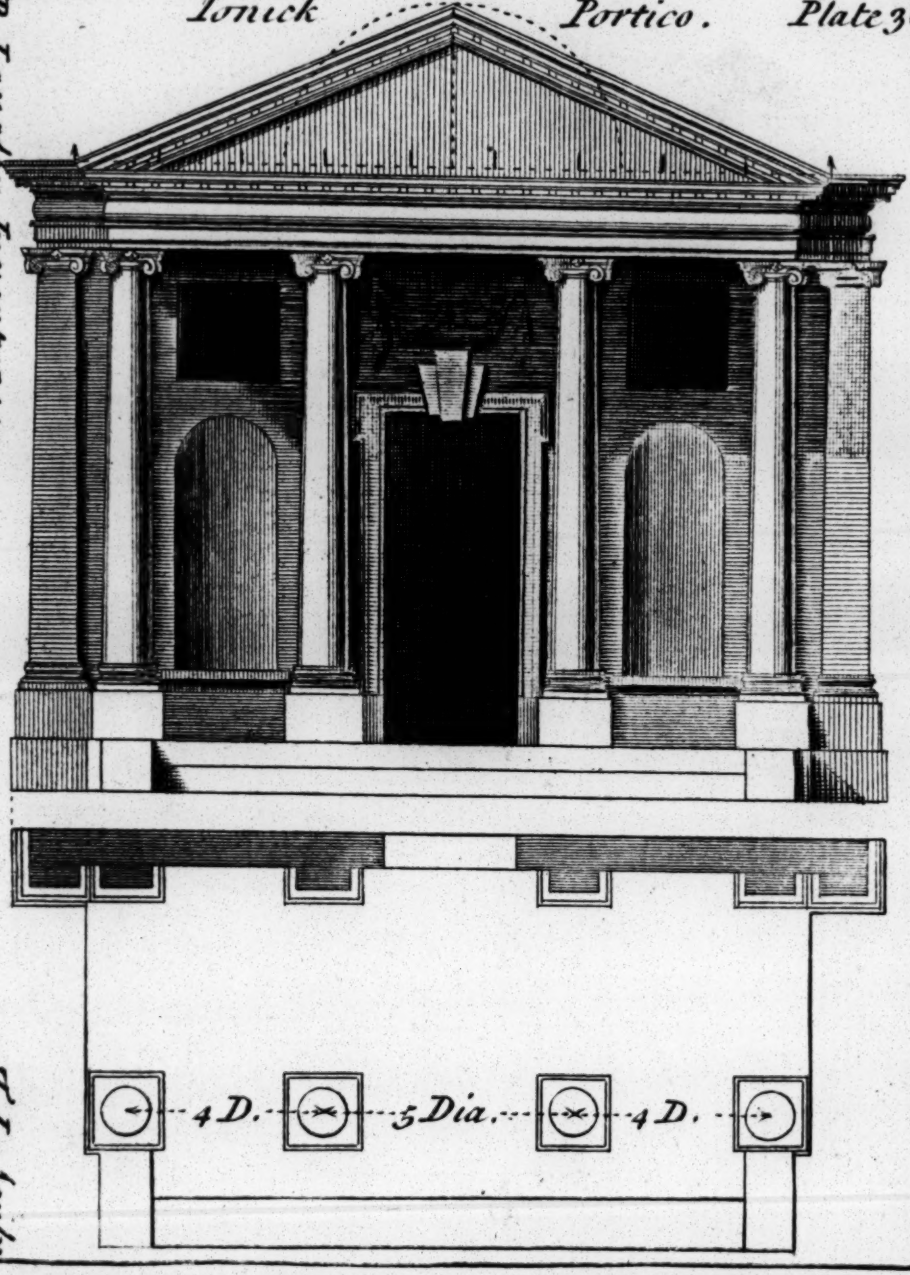
Ionick Intercolumnations for a Dentule Cornice.


12 Den.
16 Dent.
20 Dent.
25 Dentules
Divide each Semidiameter in 12 give 2 a Dentute & 1 to an Interval.
1 D. ½
2 Diam.
2 Diam. ½
3 Diameters

B. Langle
Inv. 1741.

T. L. Sculp.

Ionick Portico. *Plate 36*

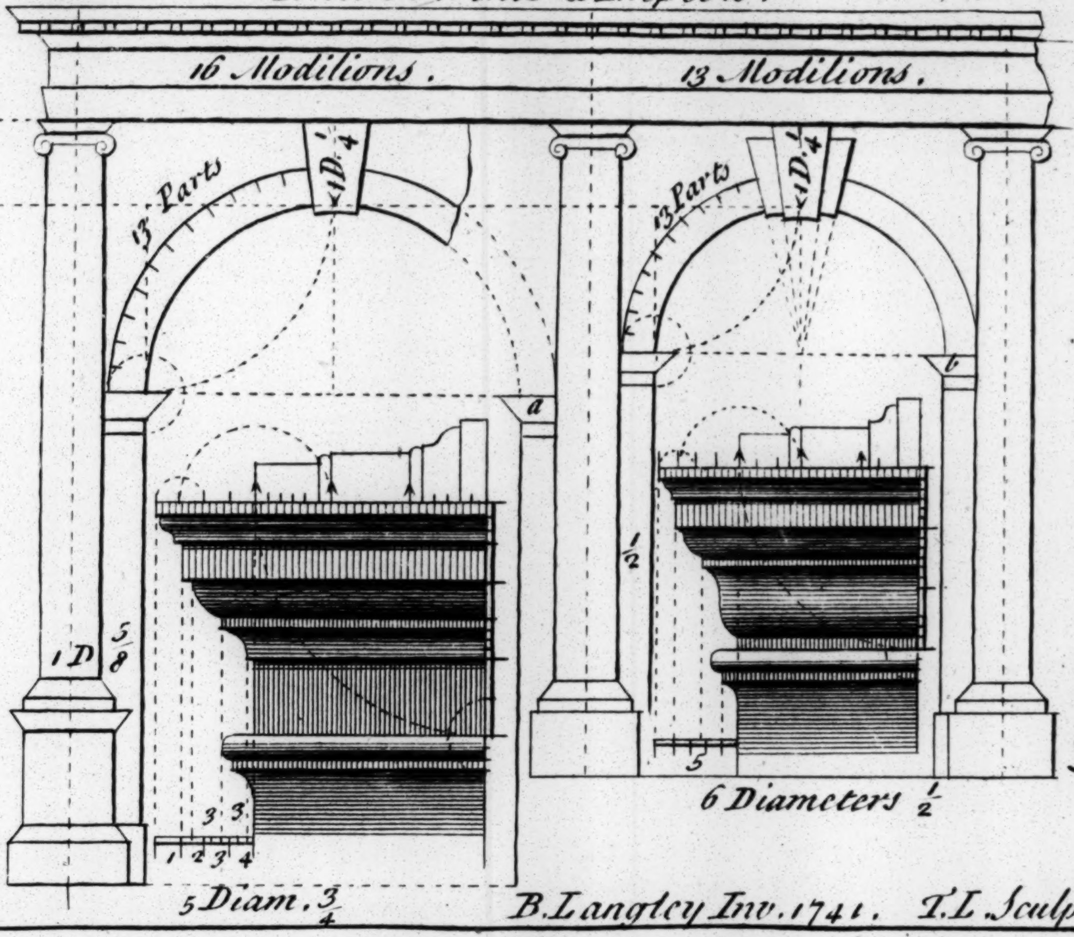


B. Langley Invent 1741.

T. L. Sculp

Pl. 37.

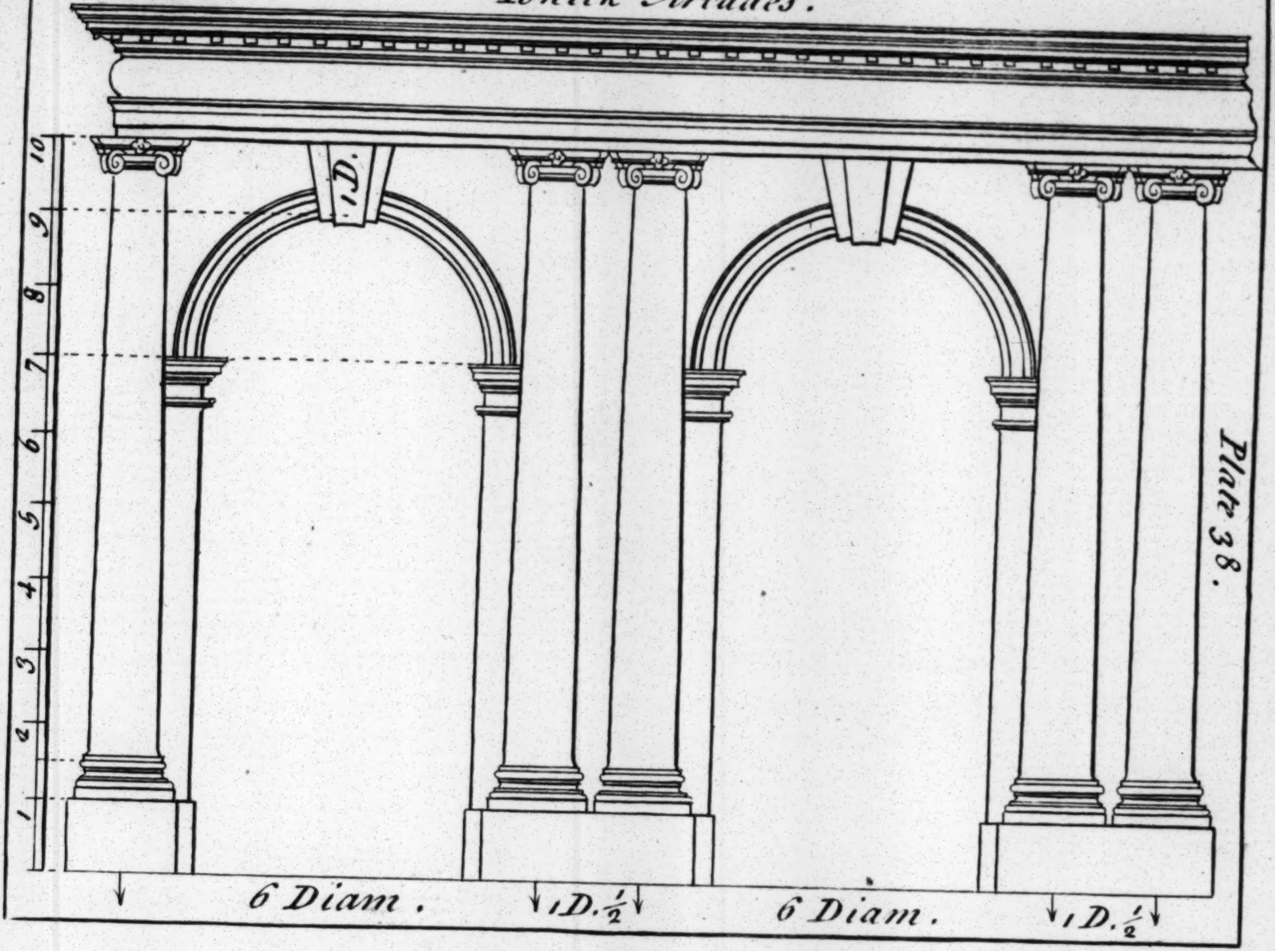
Ionick Arches & Imposts.



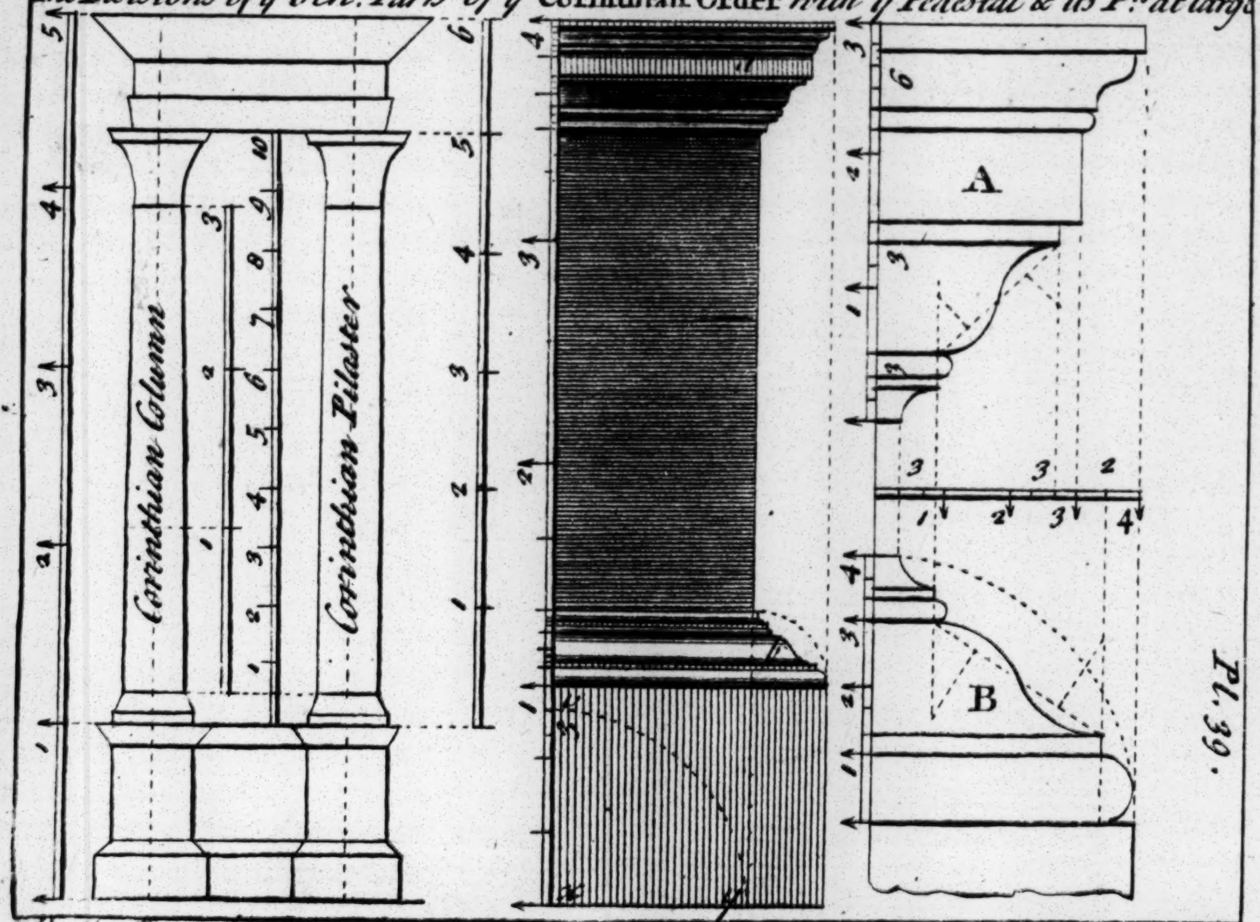
B. Langley Inv. 1741. T.L. Sculp.

Plate 38.

Ionick Arcades.



The Divisions of ye Gen.l Parts of ye Corinthian Order with ye Pedestal & its Pts at large



Pl. 39.

Batty Langley Invent 1741.

T. L. Sculp.

The various Kinds of Leaves for the Enrichment of Capitals.

The various Kinds of Leaves for the Enrichment of Capitals.

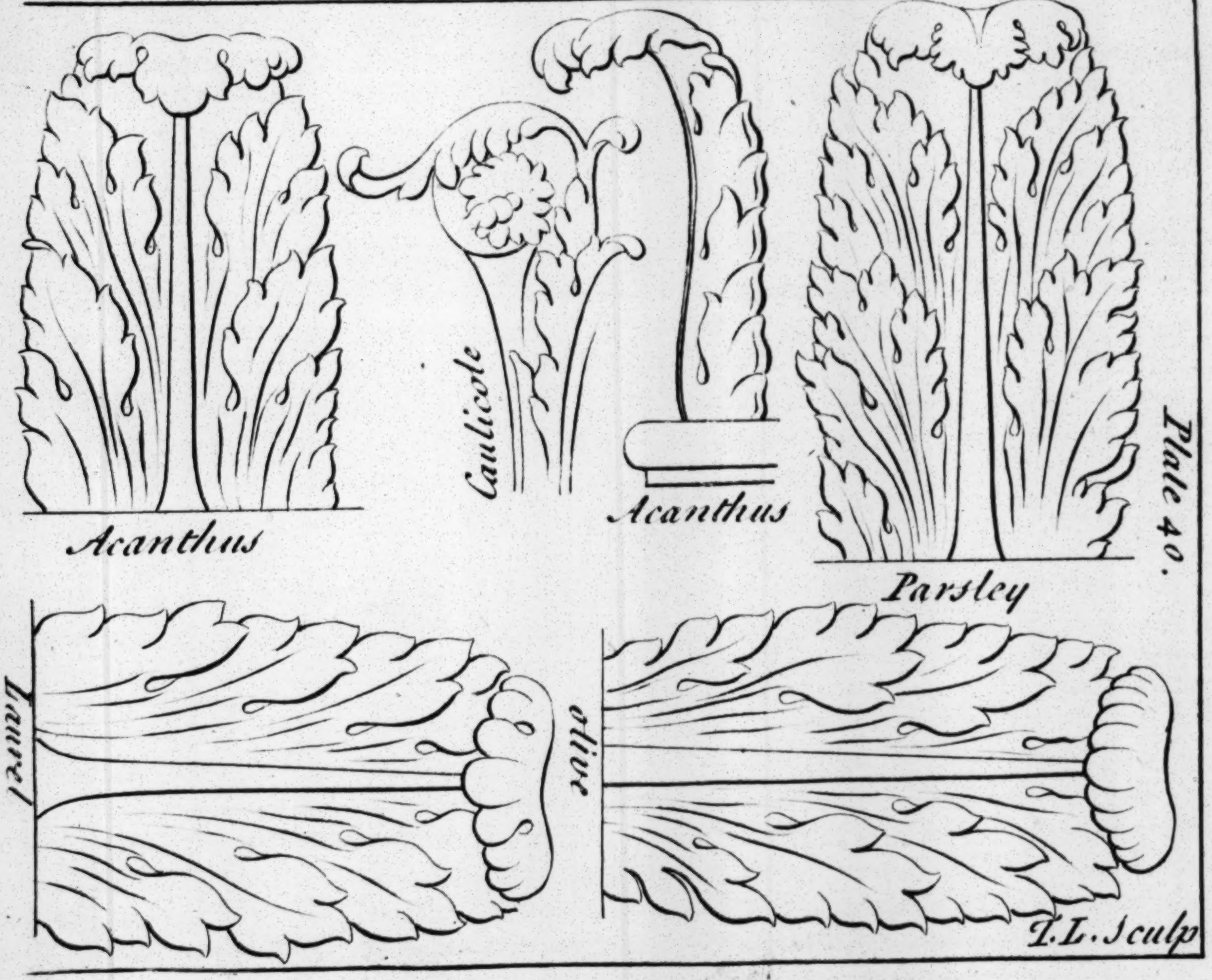
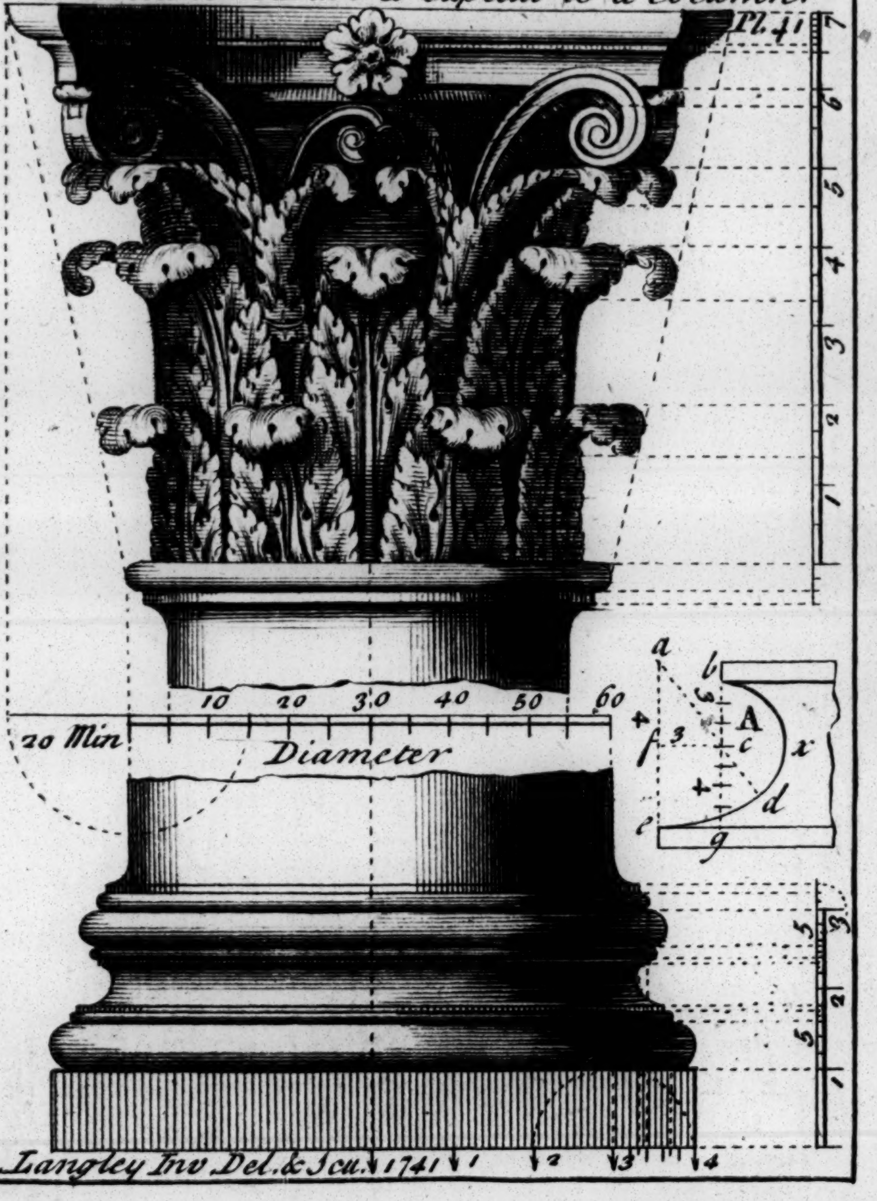


Plate 40.

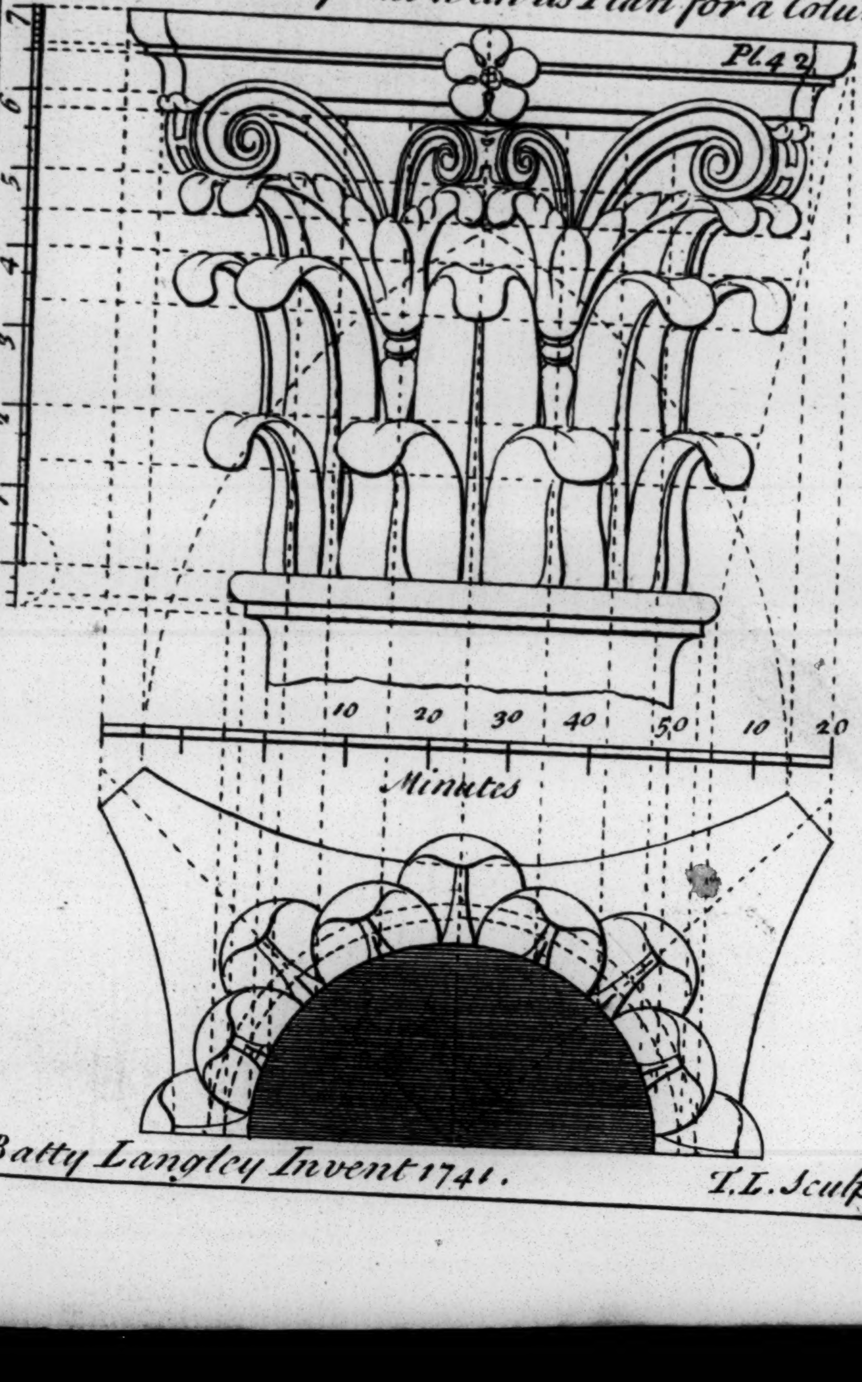
The Corinthian Base & Capital to a Column.



Tho. Langley Inv. Del. & Scu. 1741

The Corinthian Capital with its Plan for a Column

Pl. 42

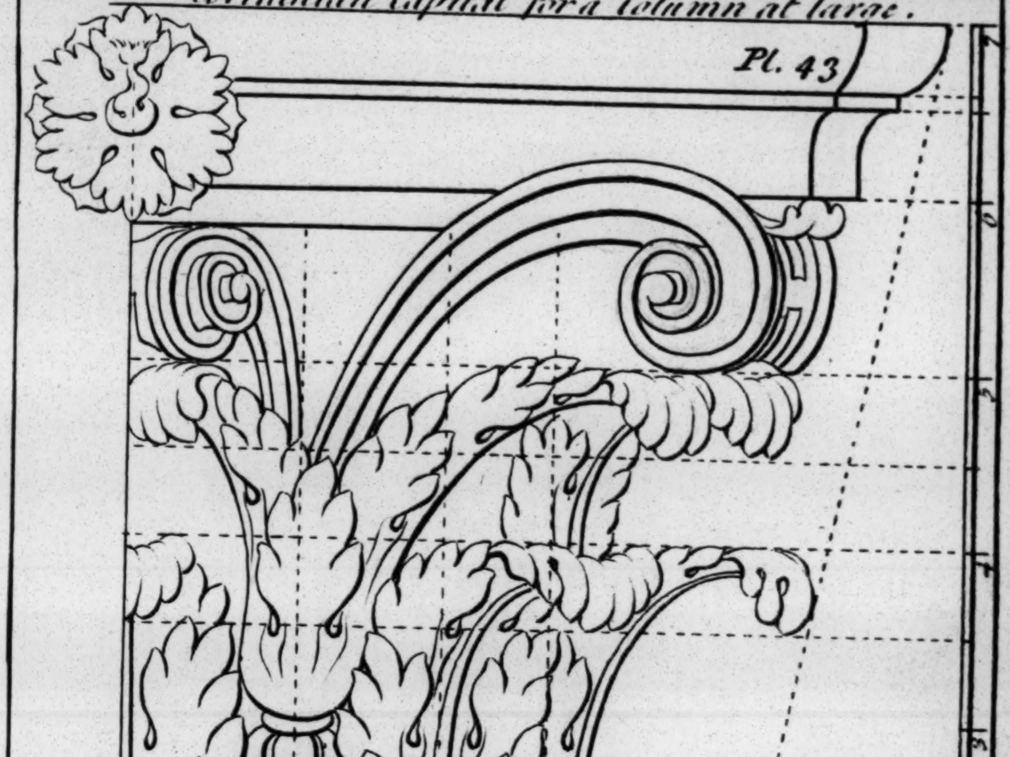


Batty Langley Invent 1741.

T.L. Sculp

Corinthian Capital for a Column at large.

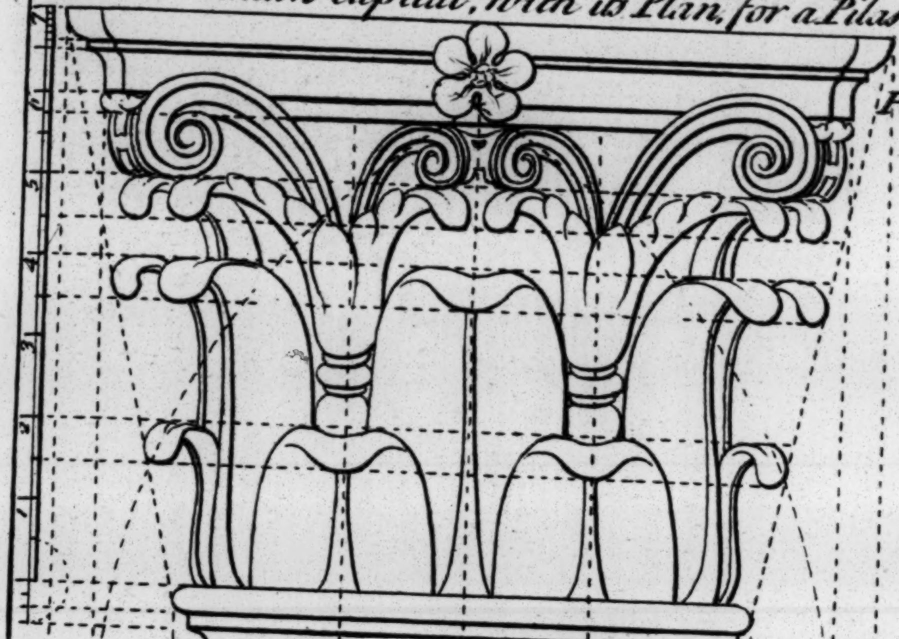
Pl. 43



B. Langley Invt. 1741. T. L. Sculp.

The Corinthian Capital, with its Plan, for a Pilaster

Pl. 44

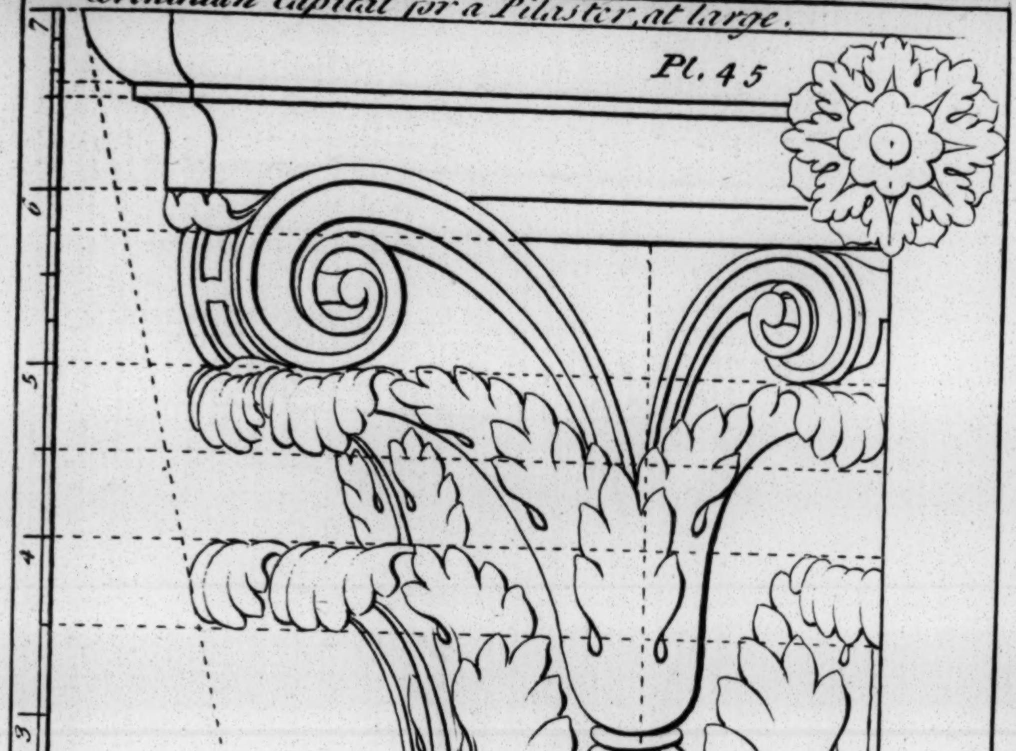


Batty Langley Invent 1741.

T.L. Sculp.

Corinthian Capital for a Pilaster, at large.

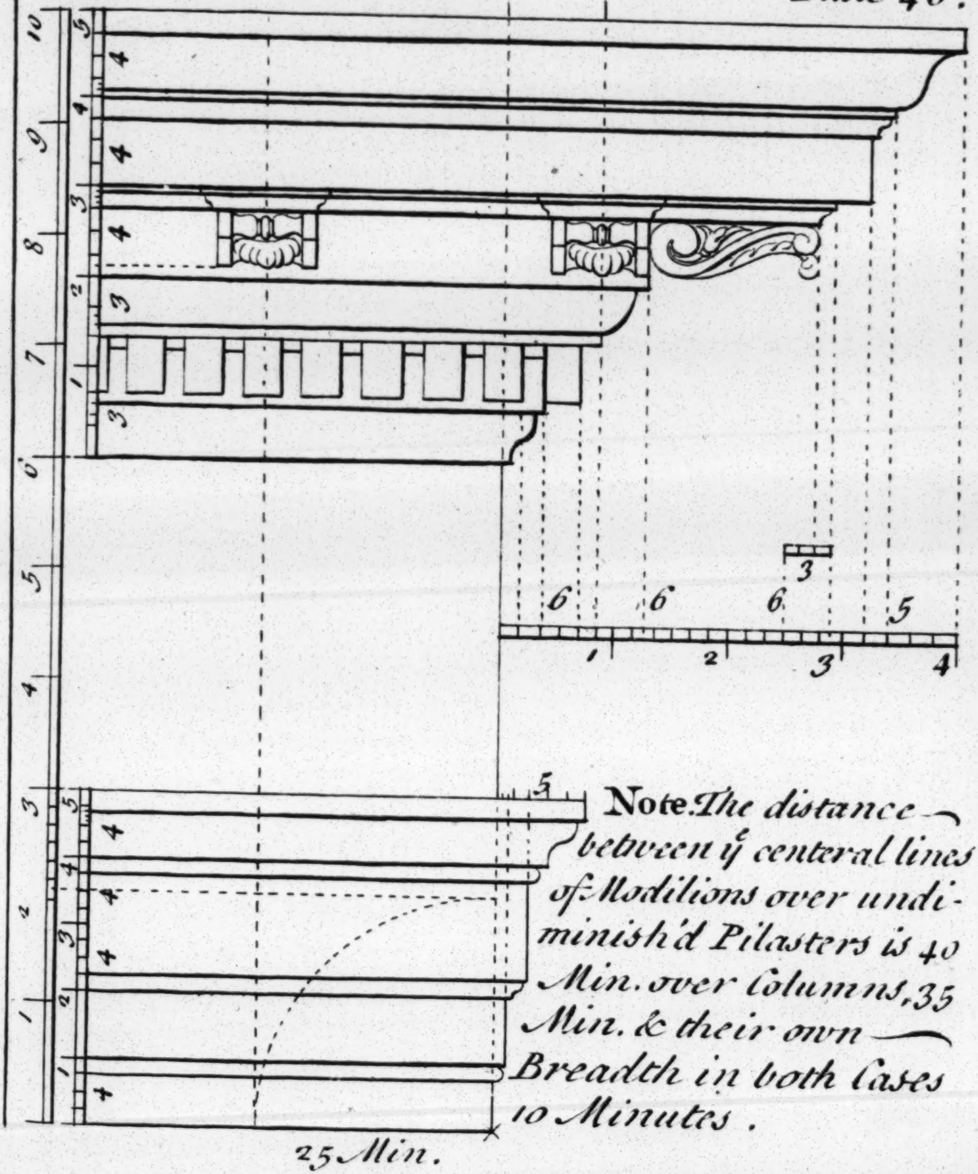
Pl. 45



B. Langley Inv.t 1741.

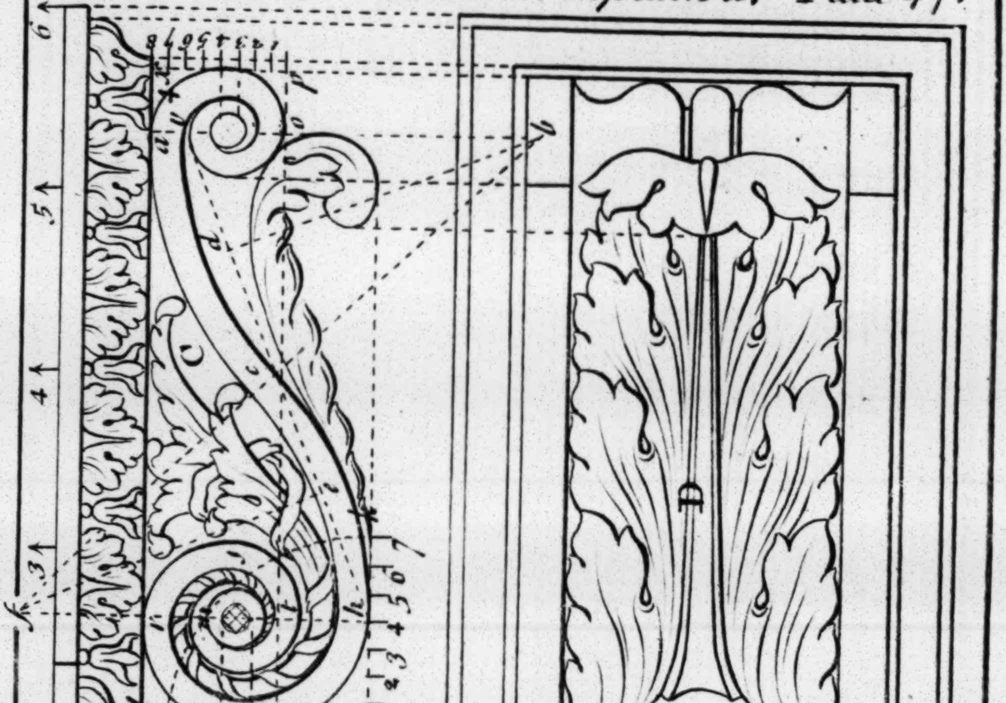
T. L. Sculp.

Corinthian Entablature. *Plate 46.*

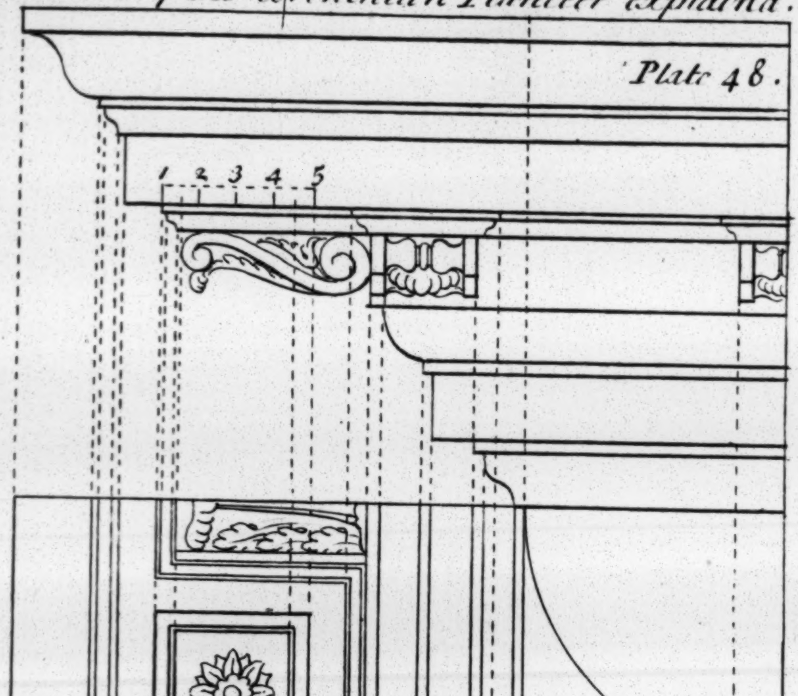


Note. *The distance between ye centeral lines of Modilions over undiminish'd Pilasters is 40 Min. over Columns, 35 Min. & their own Breadth in both Cases 10 Minutes.*

The Corinthian Modillion explain'd. Plate 47.

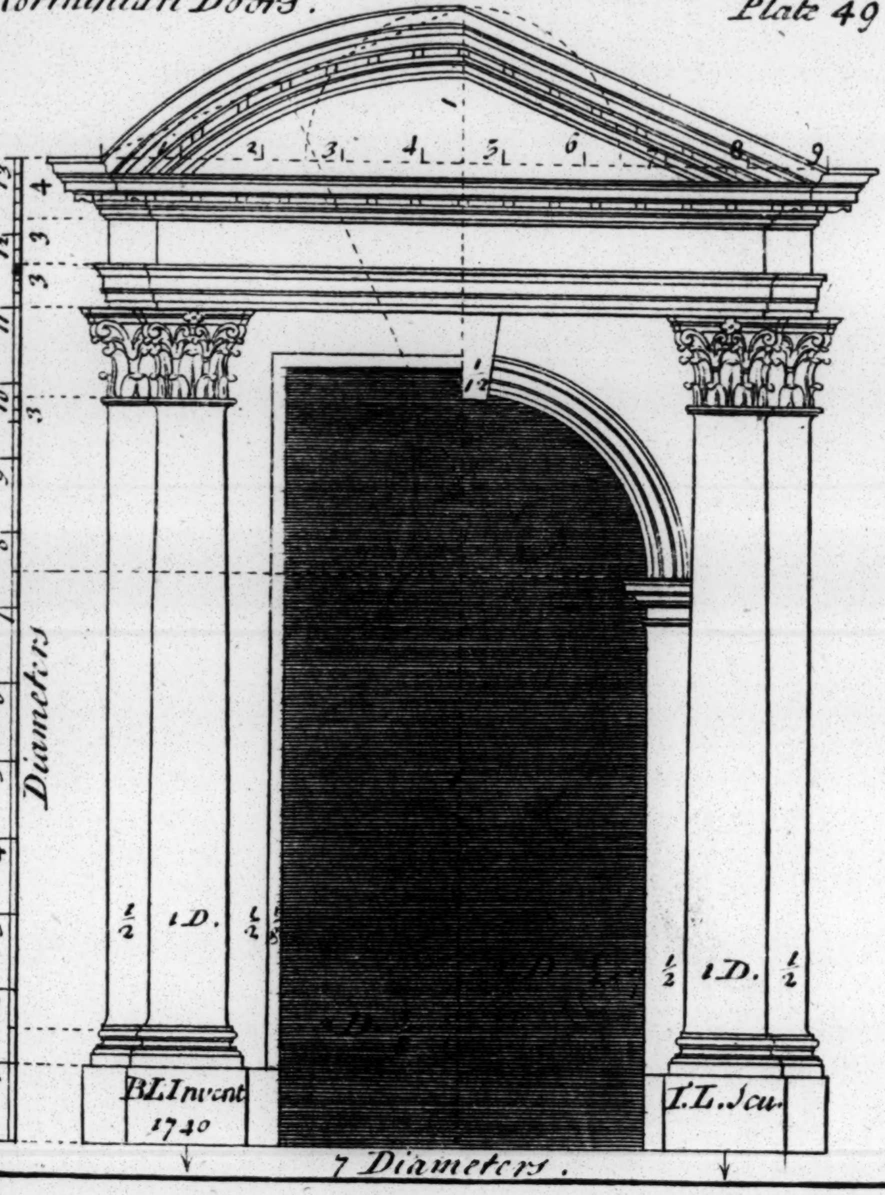


The Return of the Corinthian Planceer explain'd.

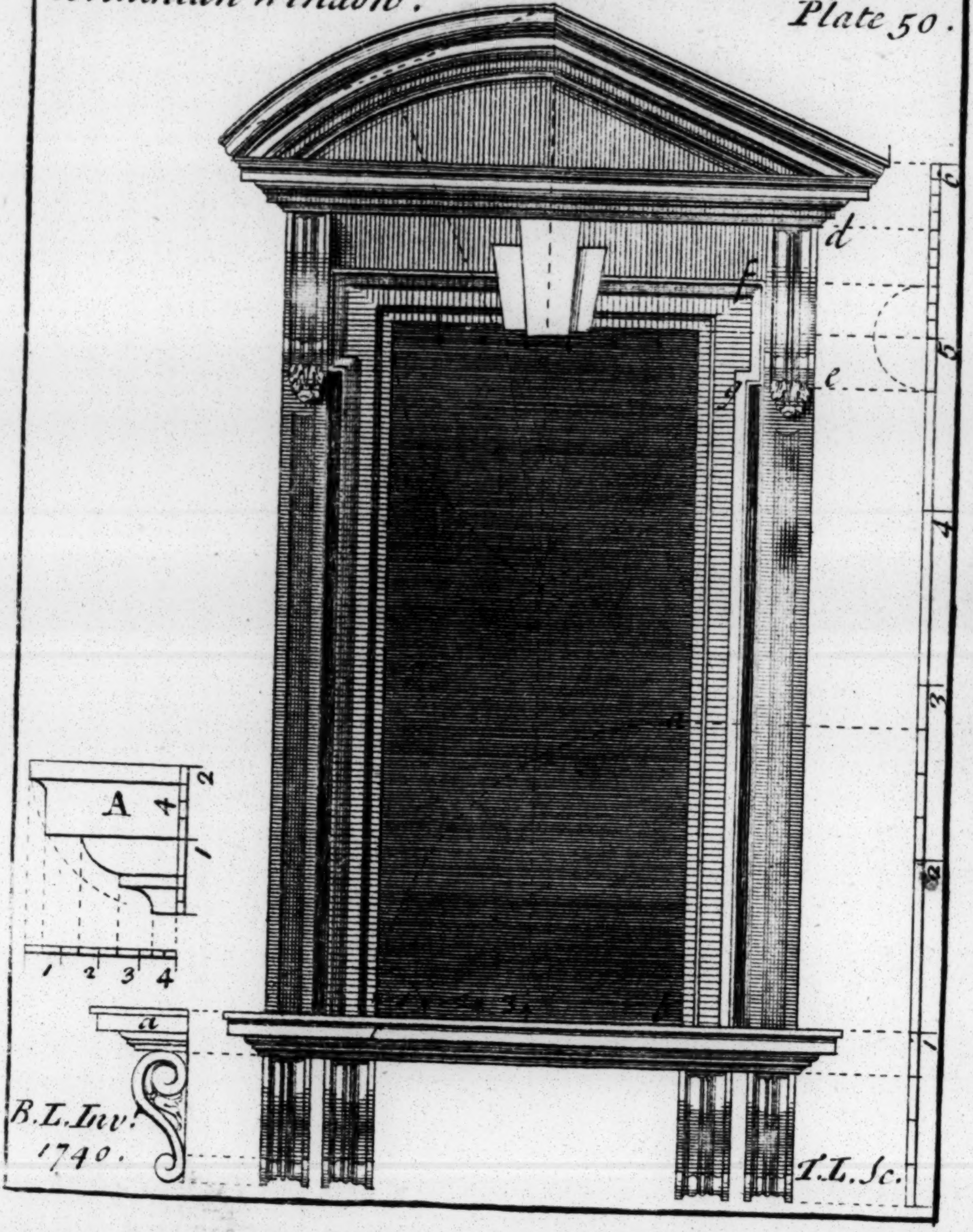


1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

Corinthian Doors. Plate 49.



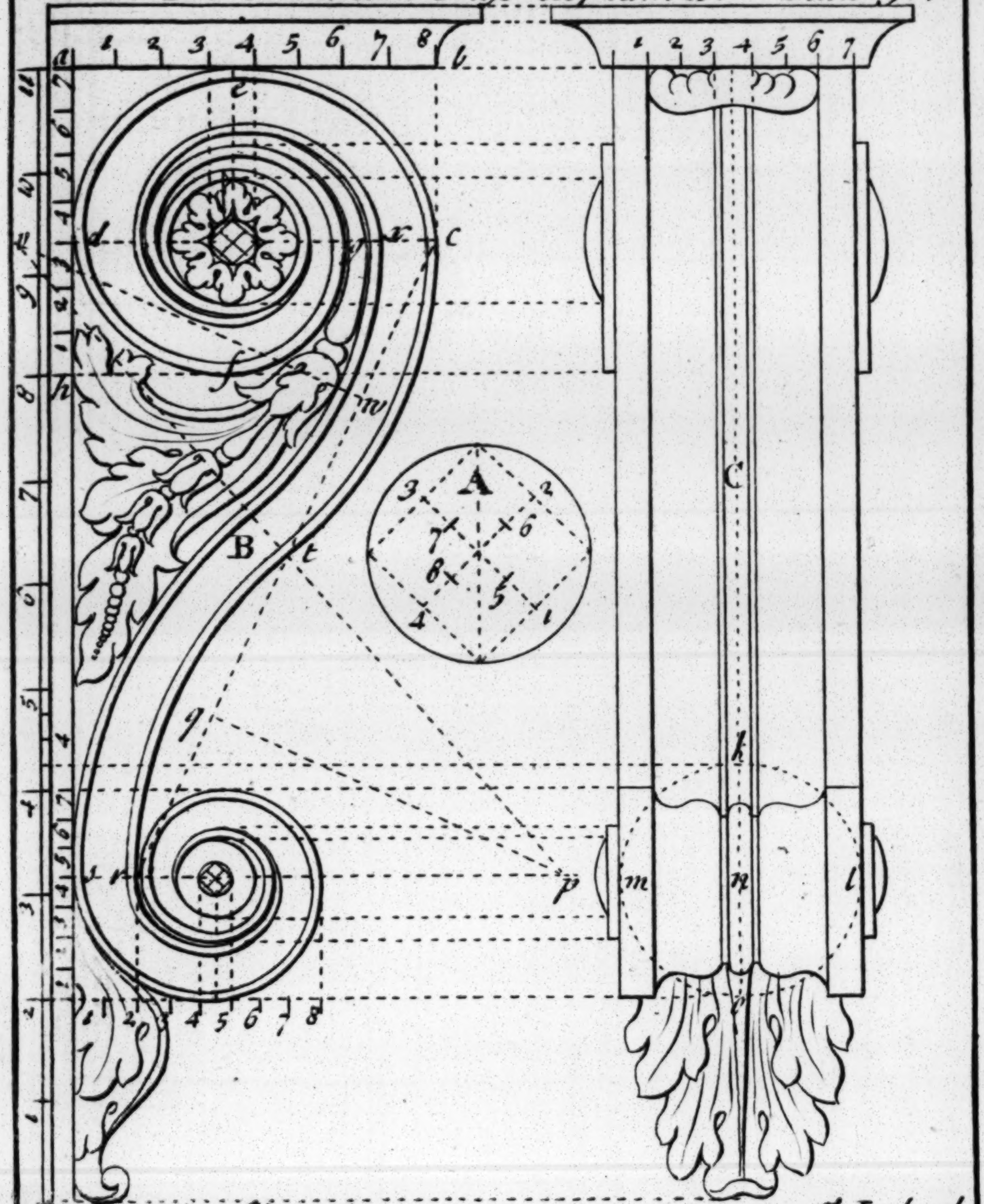
Corinthian Window. *Plate 50.*



B.L. Inv. 1740.

T.L. Sc.

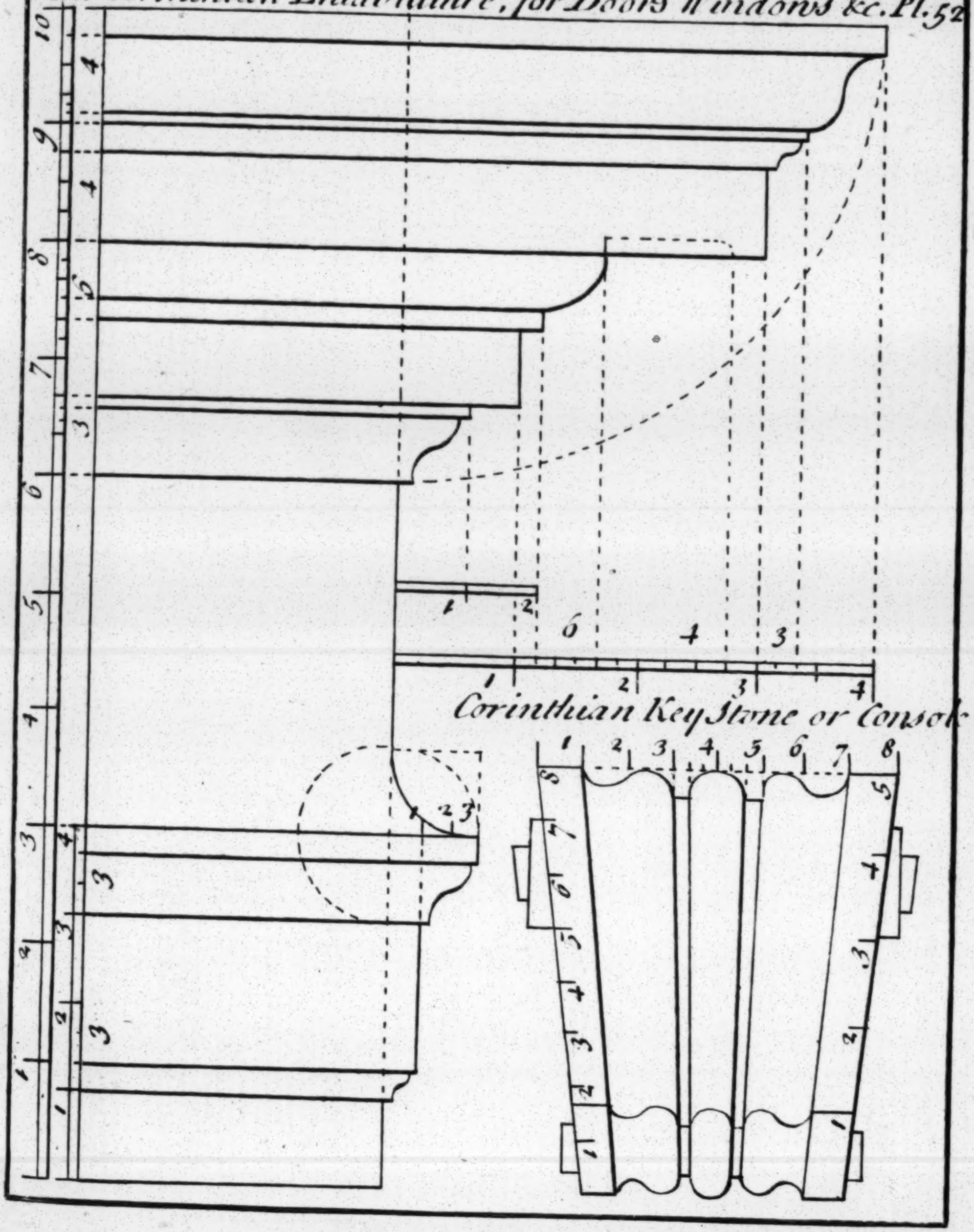
The Corinthian Truſs explain'd. Plate 51.



B. Langley Invent. 1741.

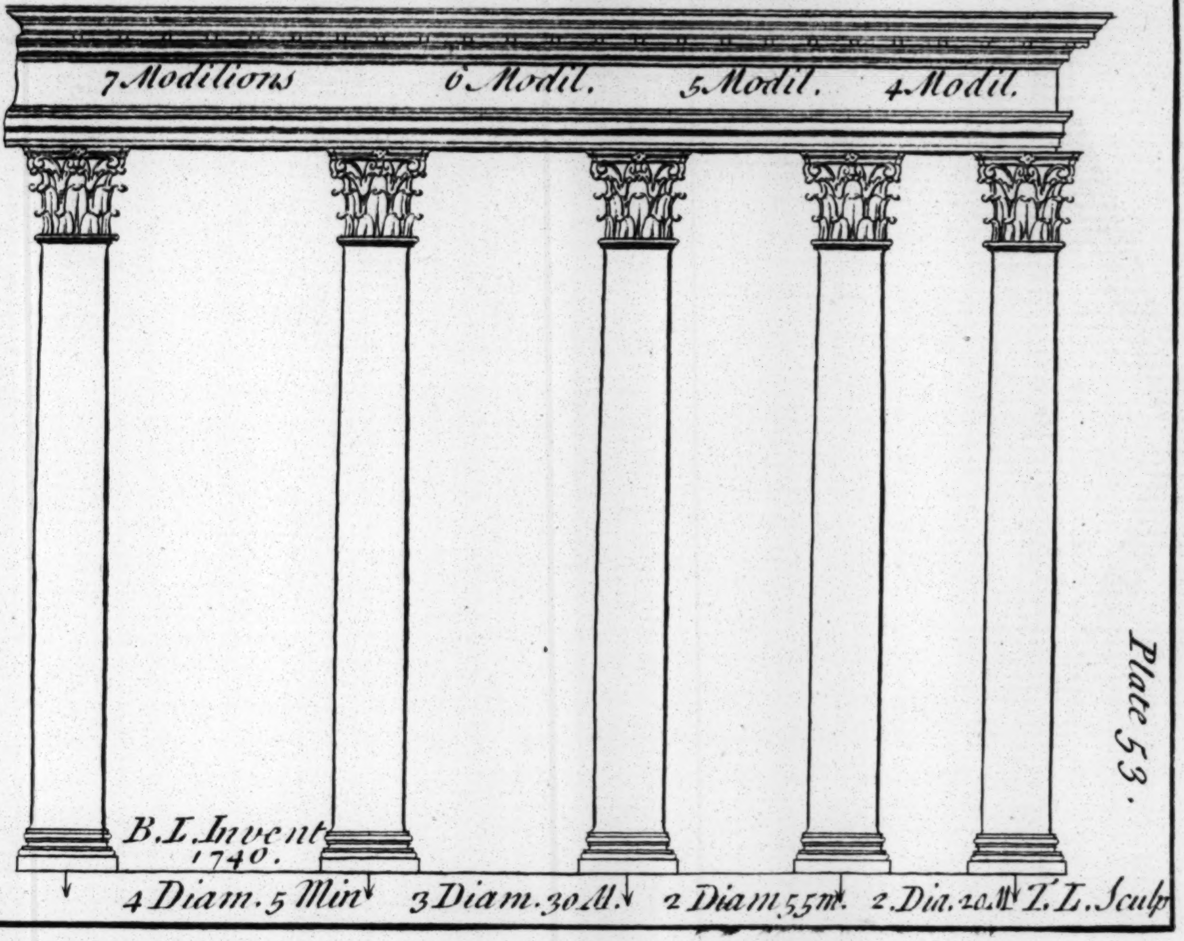
T. L. Sculp.

The Corinthian Entablature, for Doors Windows &c. Pl. 52

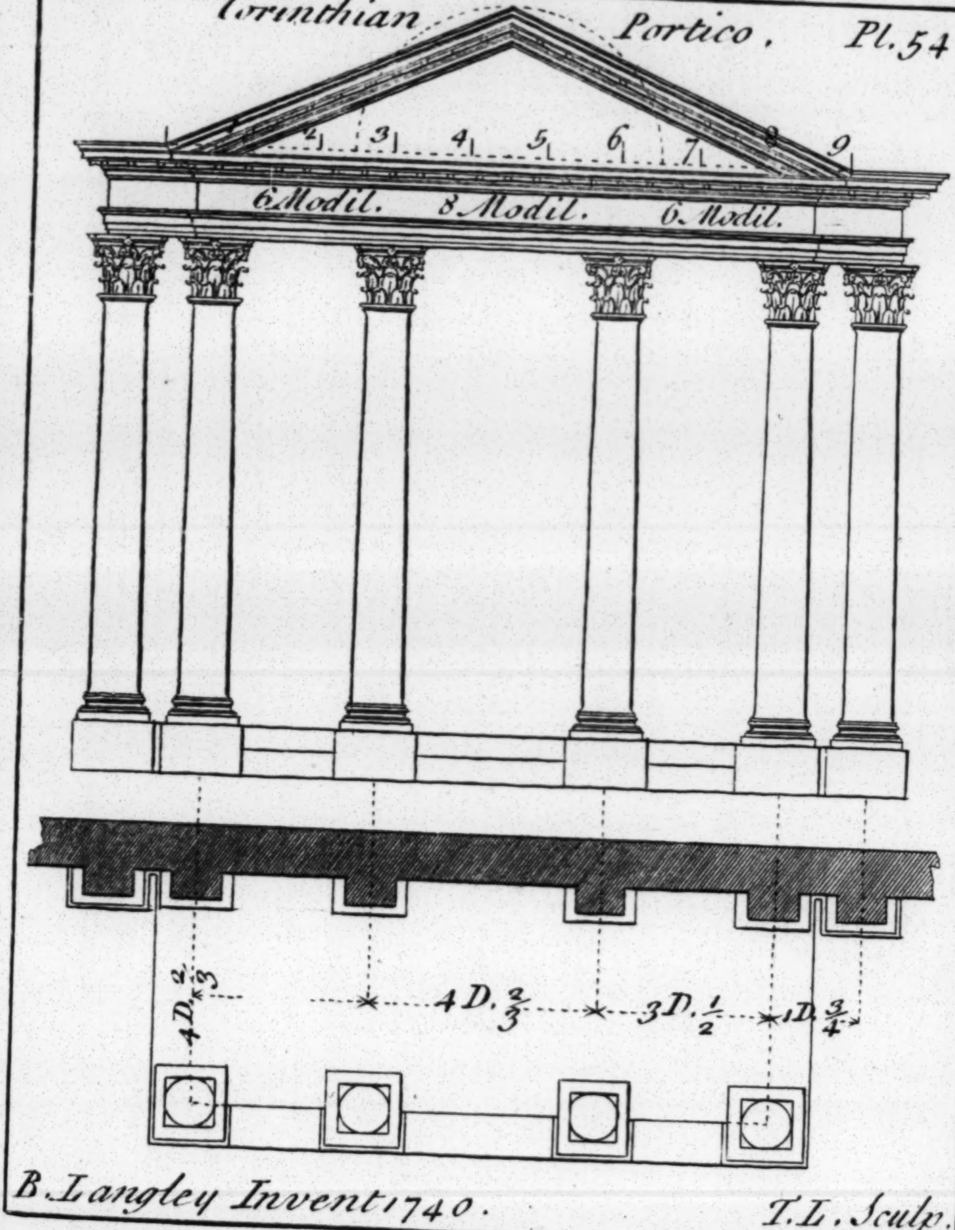


Corinthian Key Stone or Consol

Corinthian Intercolumnations.

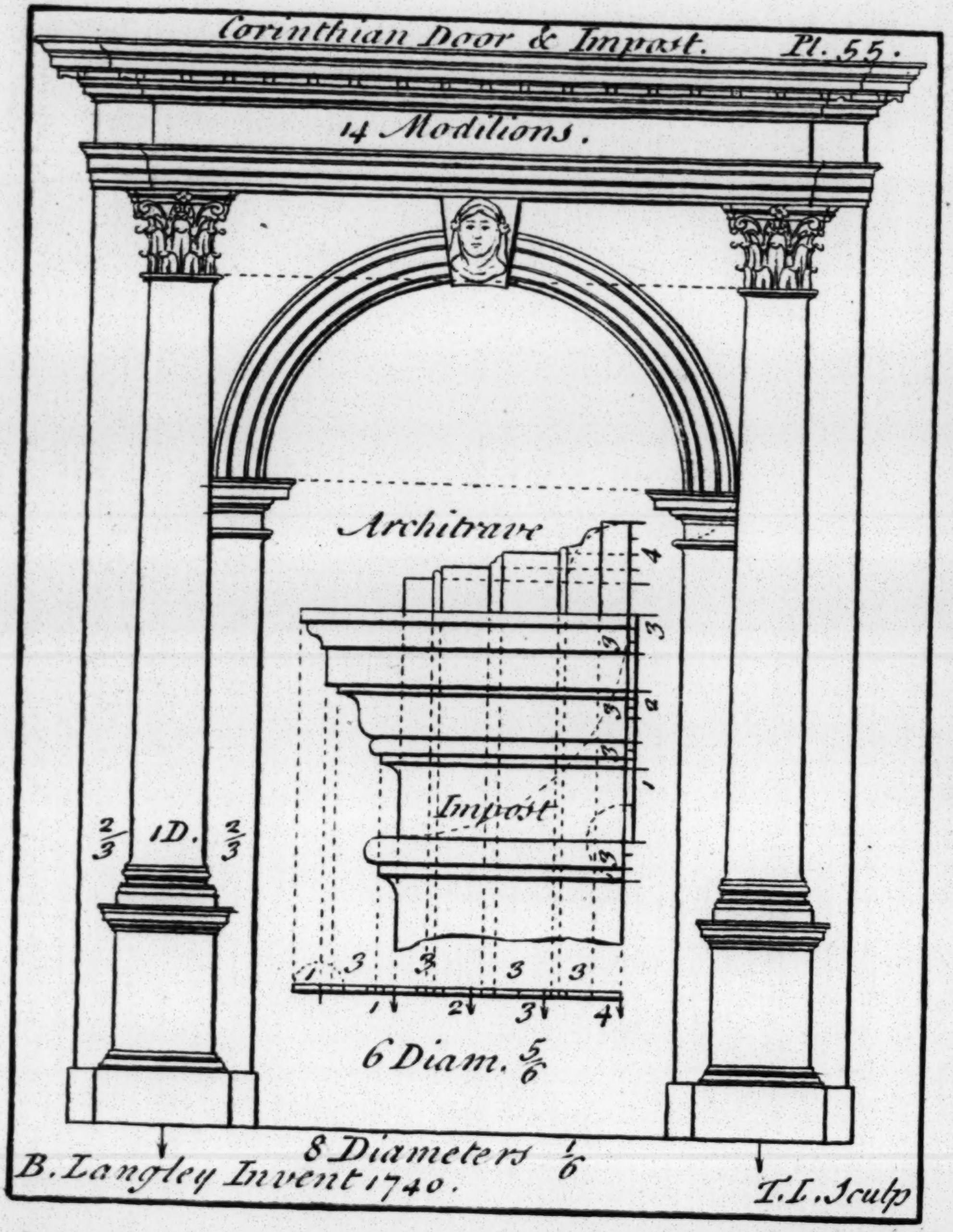


Corinthian Portico. Pl. 54.



B. Langley Invent 1740. *T. L. Sculp.*

Corinthian Door & Impost. Pl. 55.



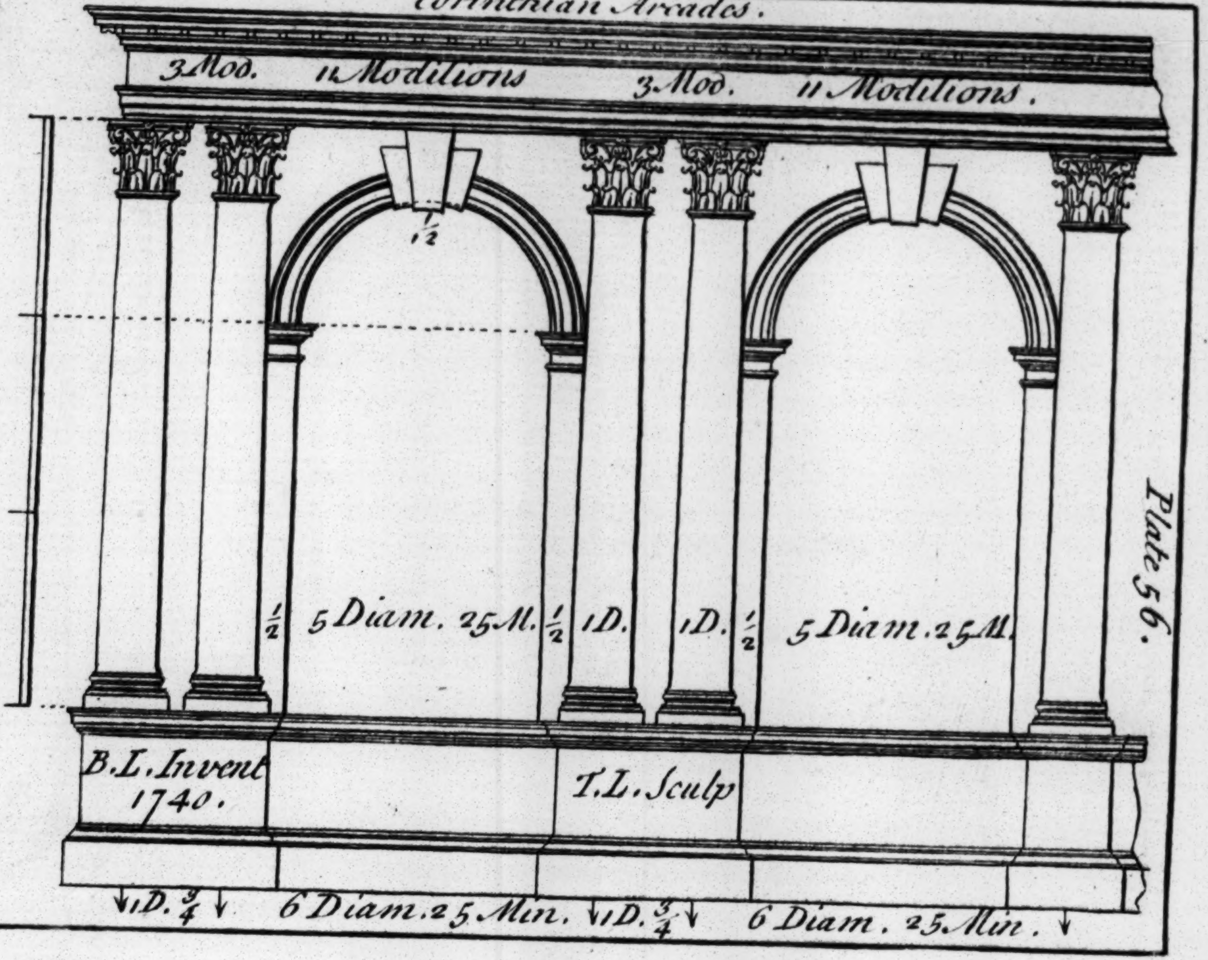
B. Langley Invent 1740.

T. L. Sculp

Corinthian Arcades

Plate 56.

Corinthian Arcades.

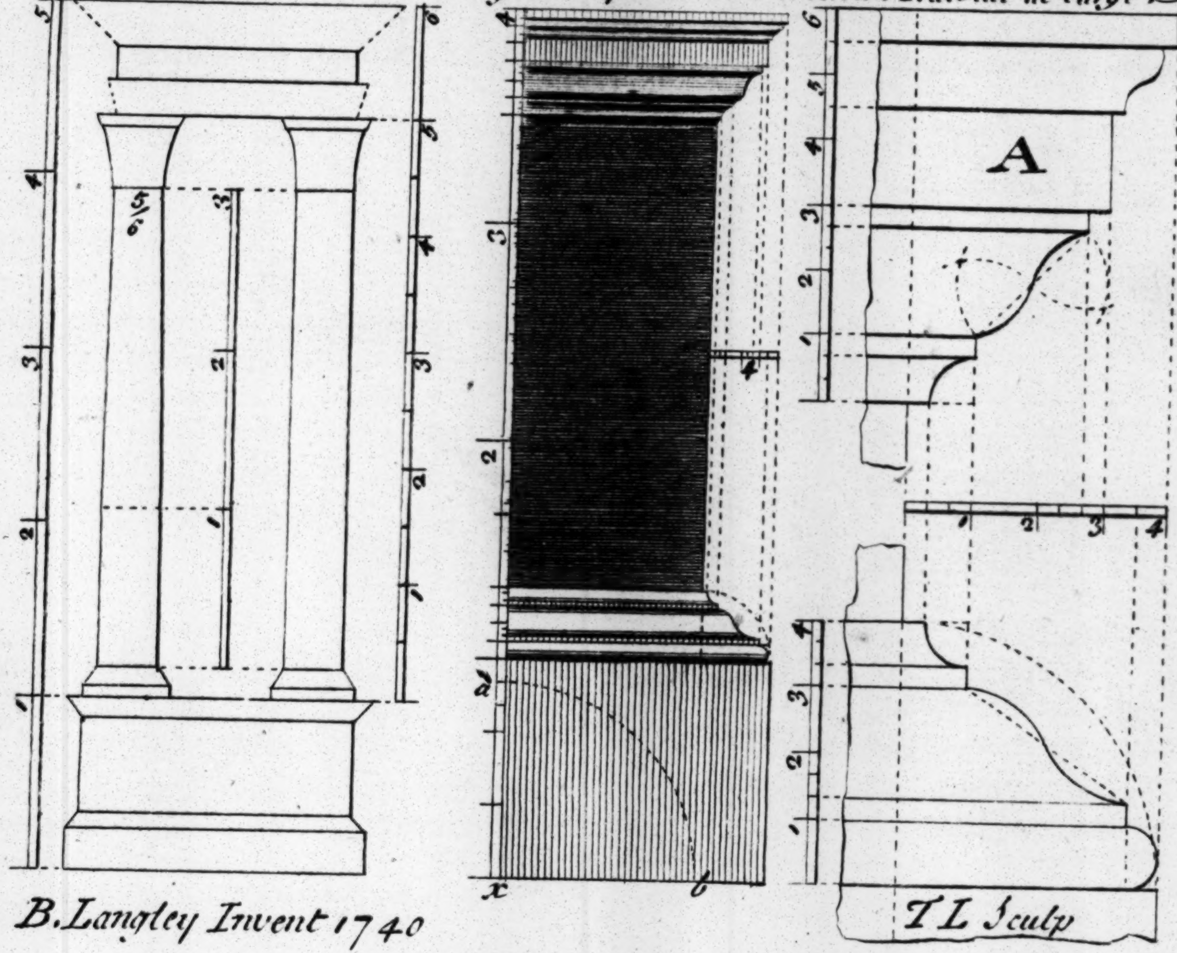


B.L. Invent
1740.

T.L. Sculp

The Division of the General Parts of the Composite order with the Pedestal at large

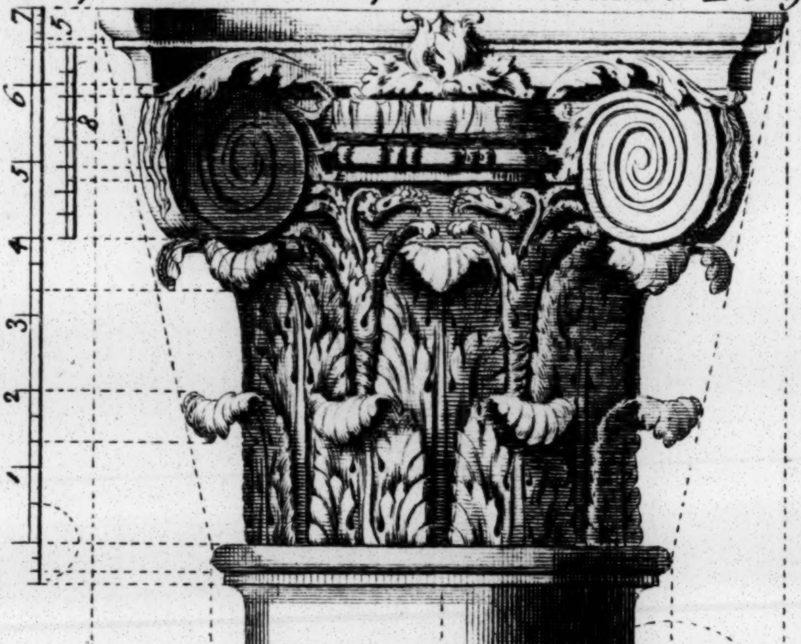
Pl. 57.



B. Langley Invent 1740

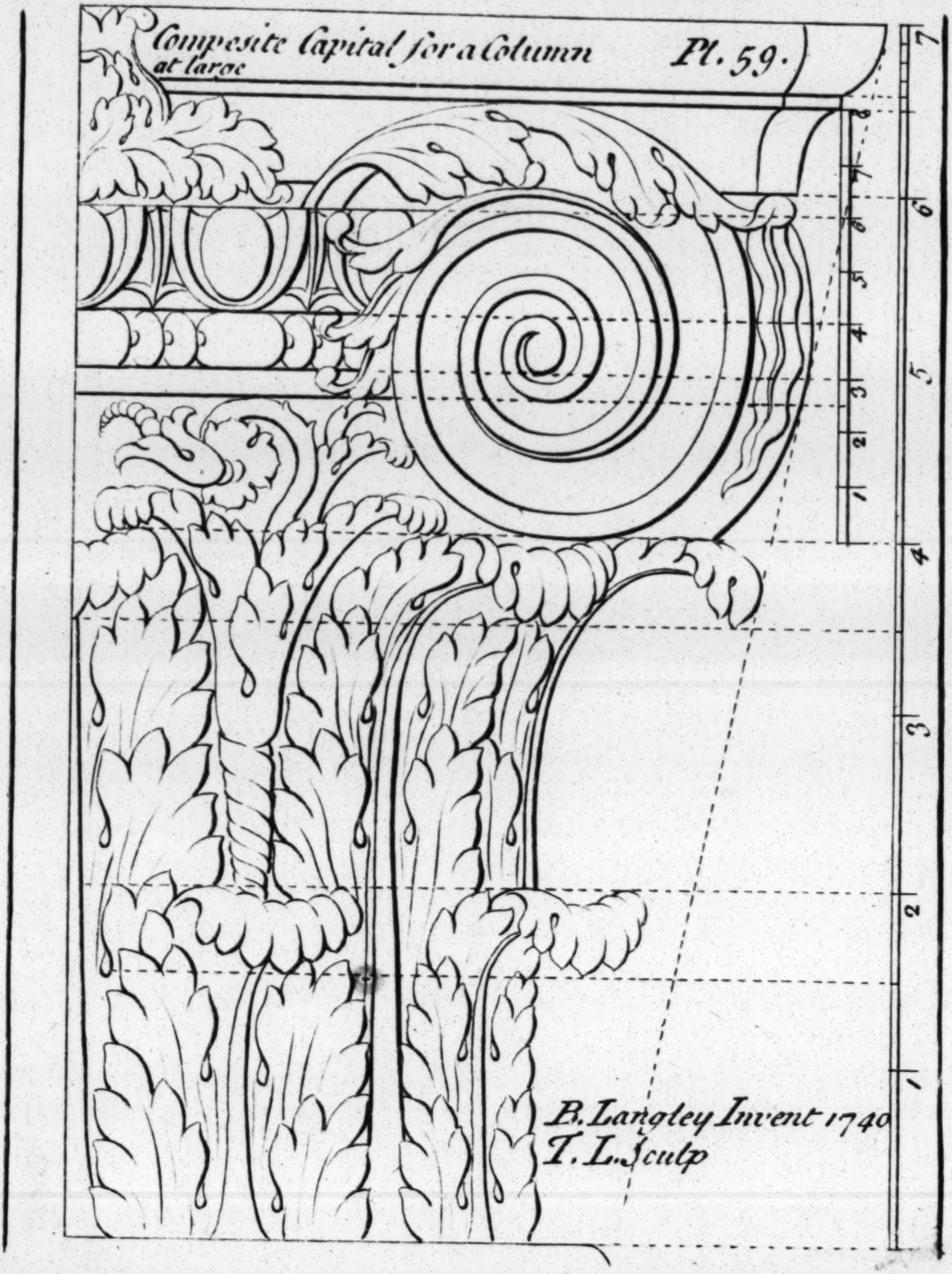
T L Sculp

The Composite Base & Capital to a Column Pl. 58.



B. Langley Invent 1740 T. L. ſculp

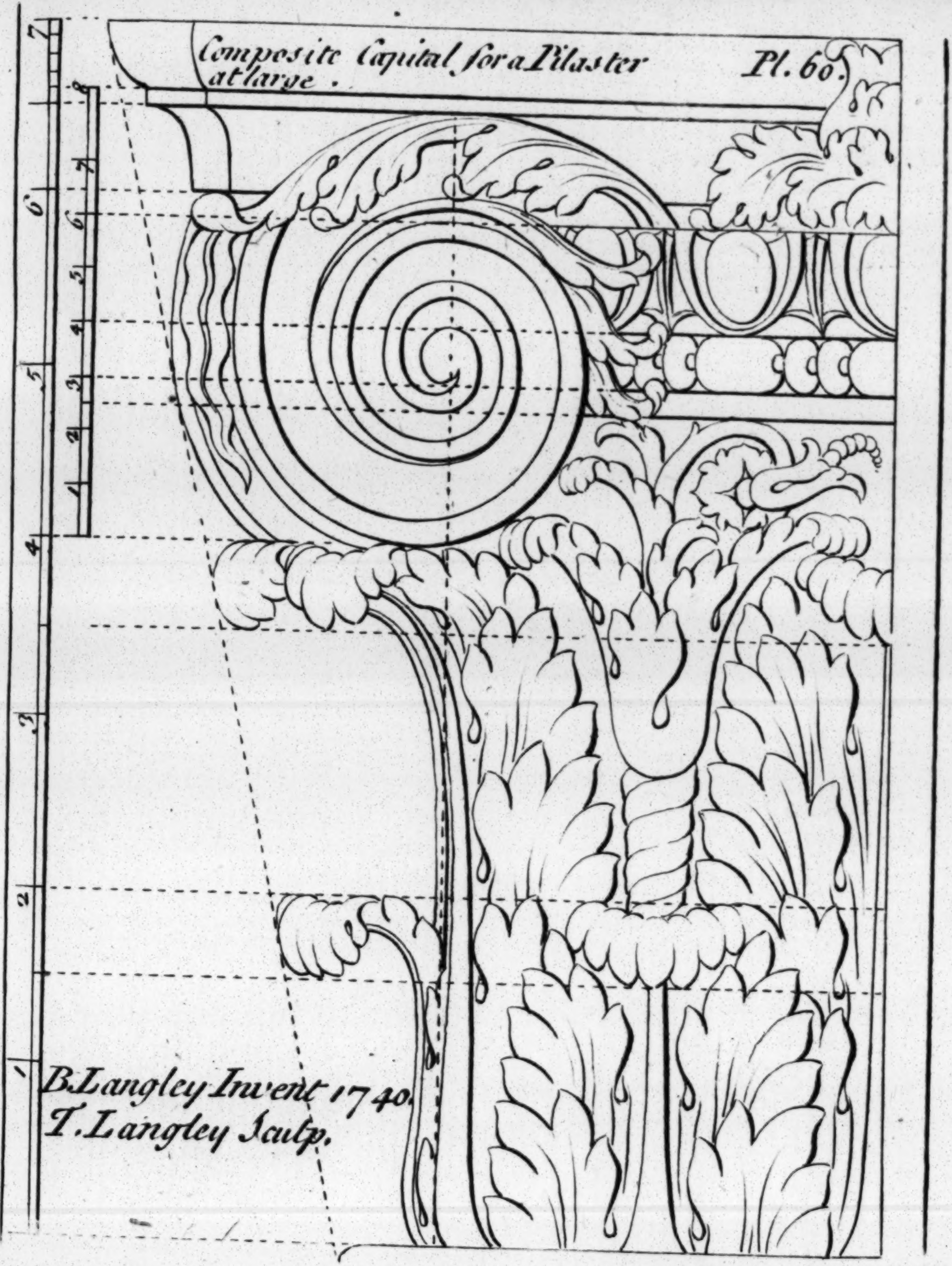
Composite Capital for a Column at large Pl. 59.



B. Langley Invent 1740
T. L. Sculp

Composite Capital for a Pilaster at large.

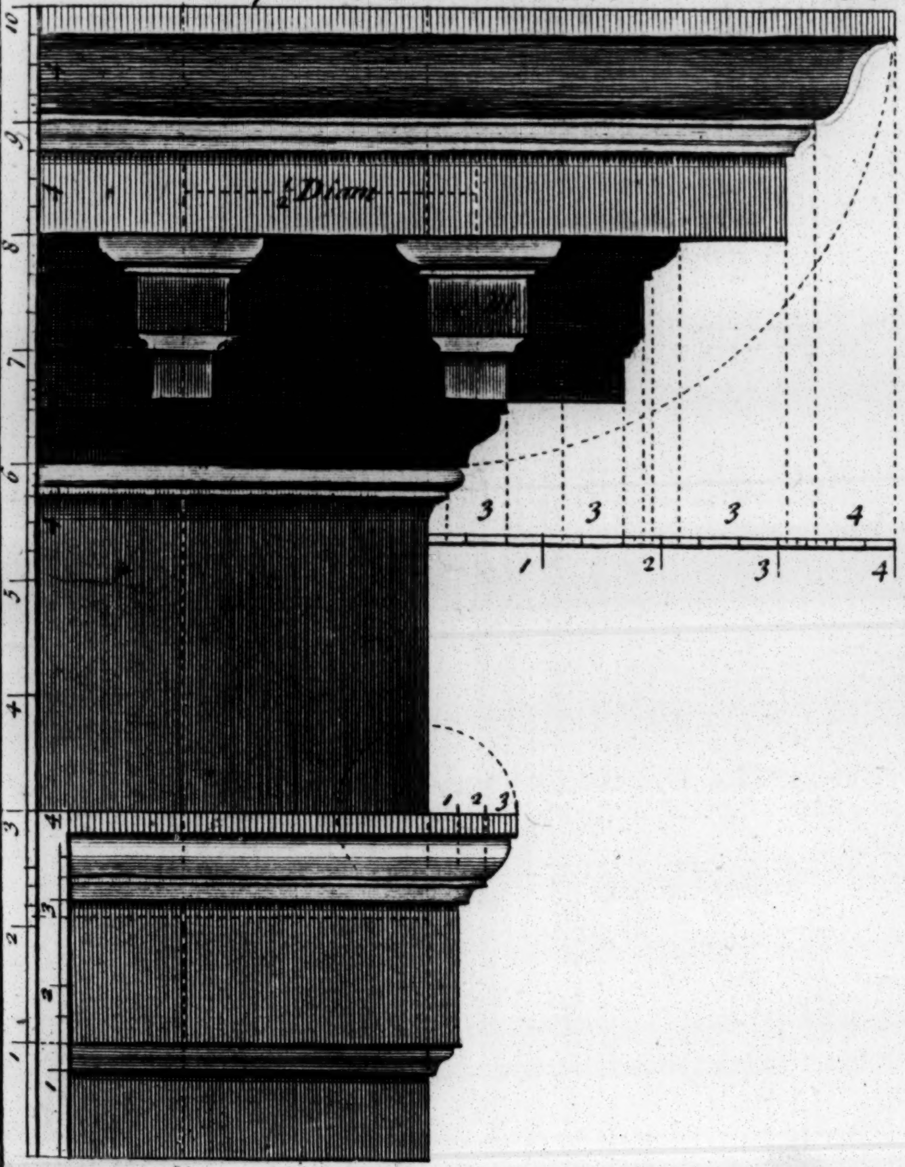
Pl. 60.



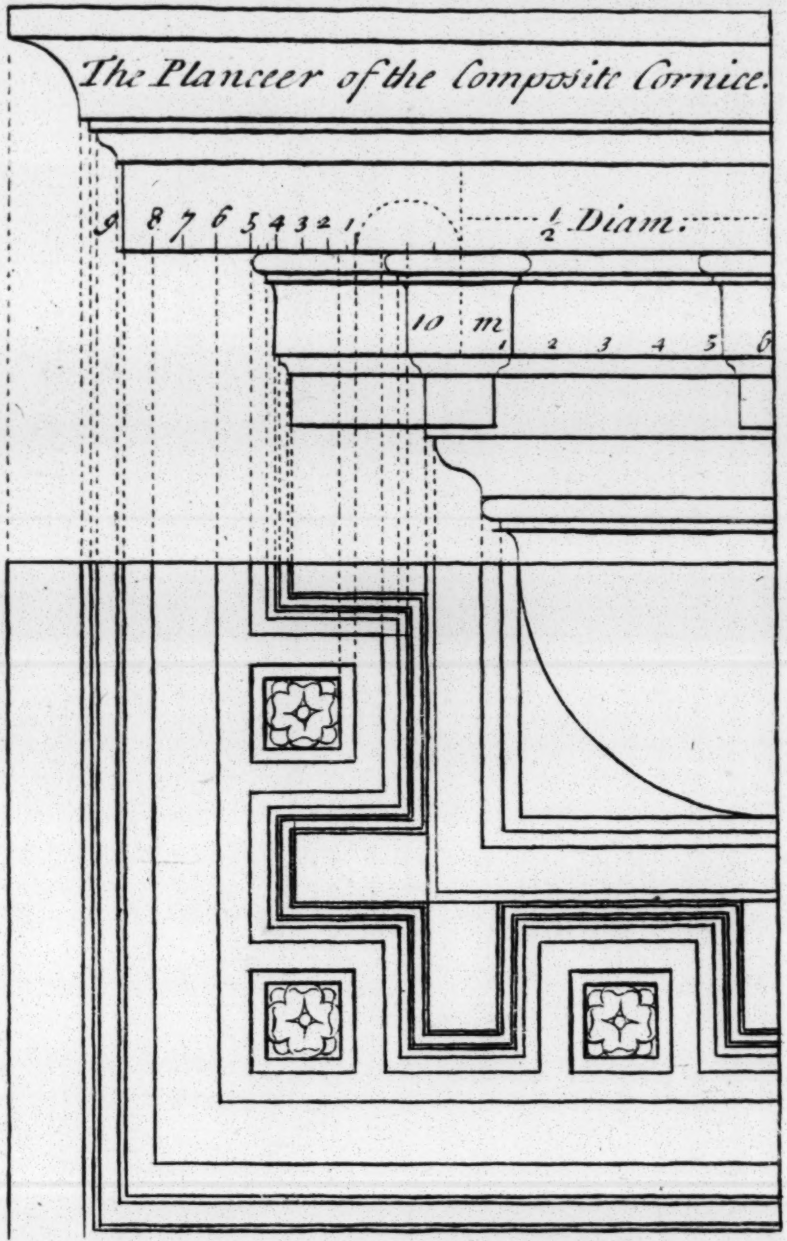
B. Langley Invent 1740.
T. Langley Sculp.

The Composite Entablature.

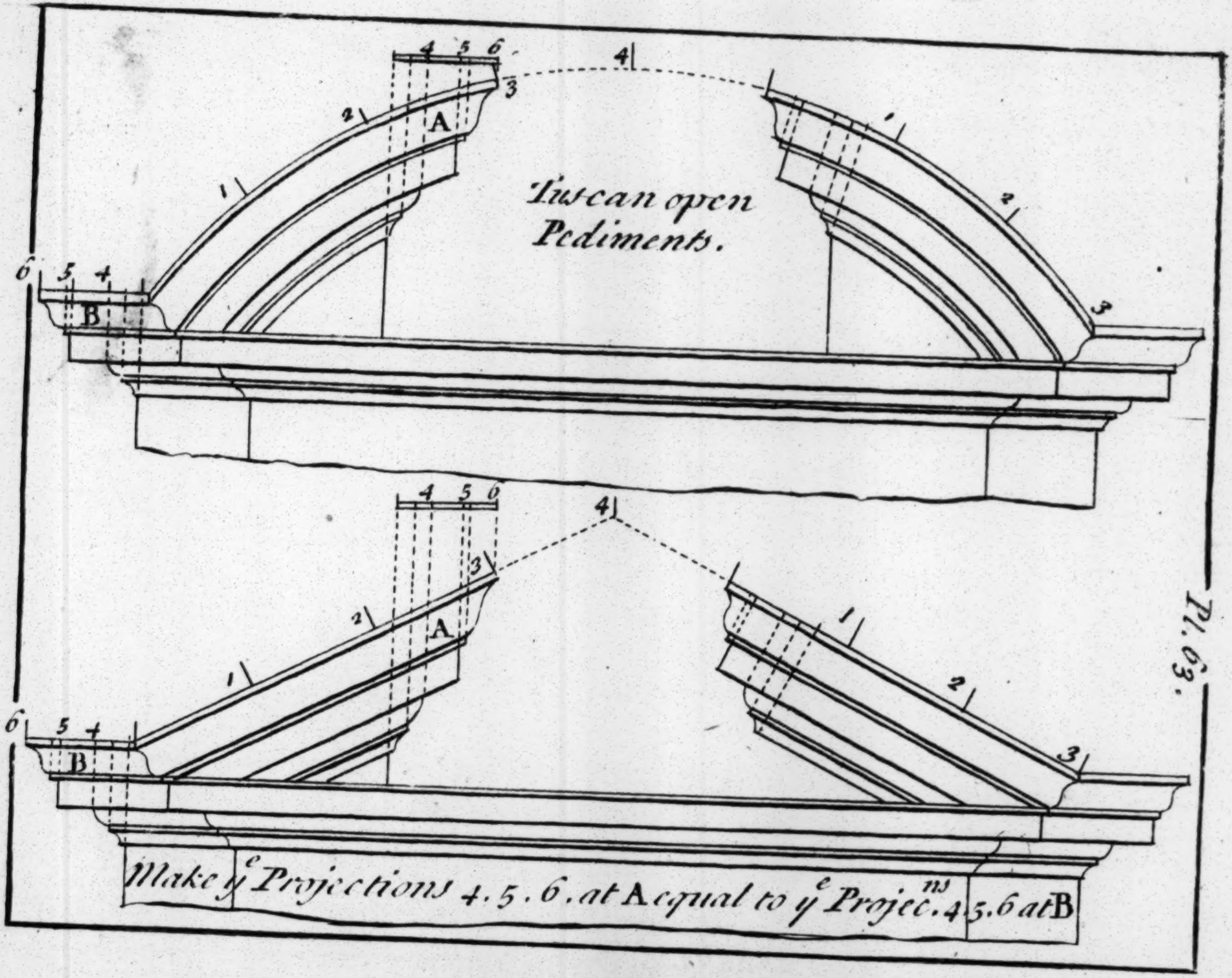
Pl. 61.



The Planceer of the Composite Cornice.



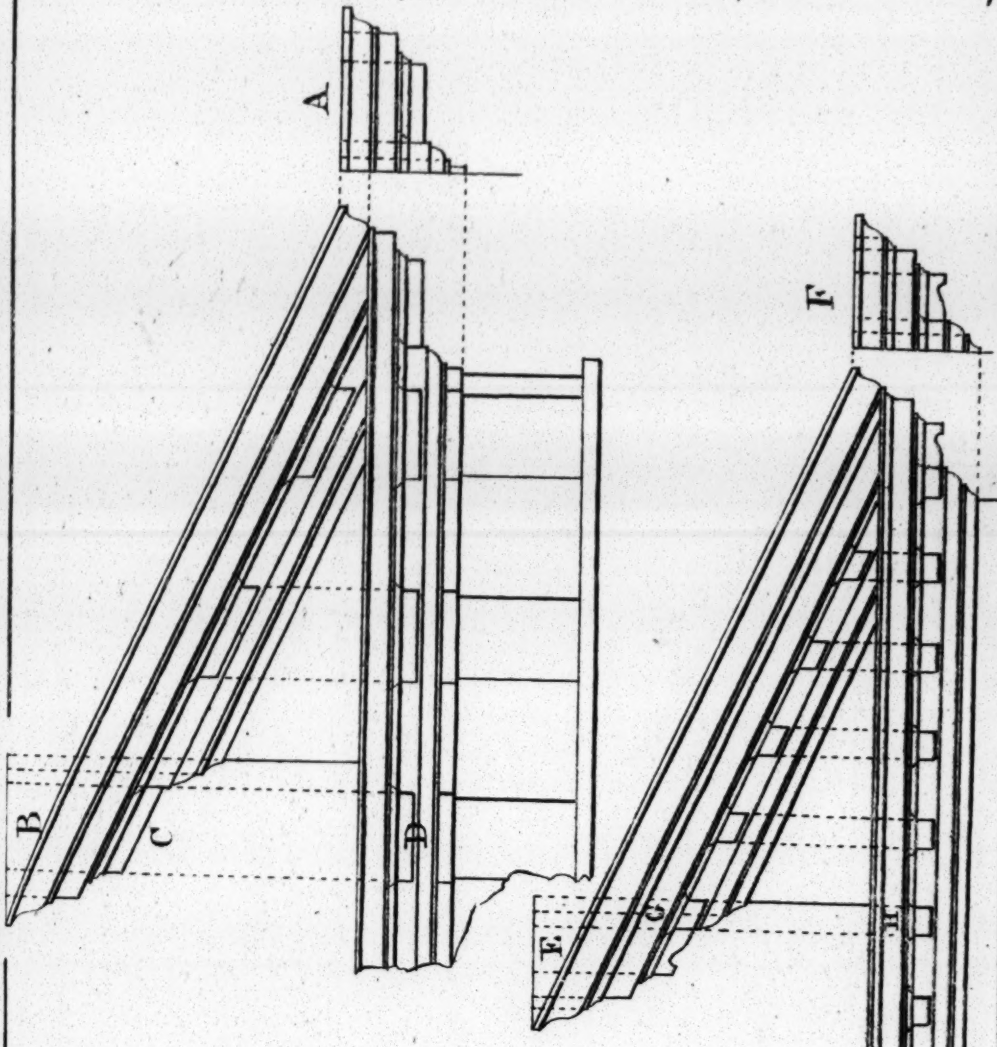
Pl. 63.



Tuscan open Pediments.

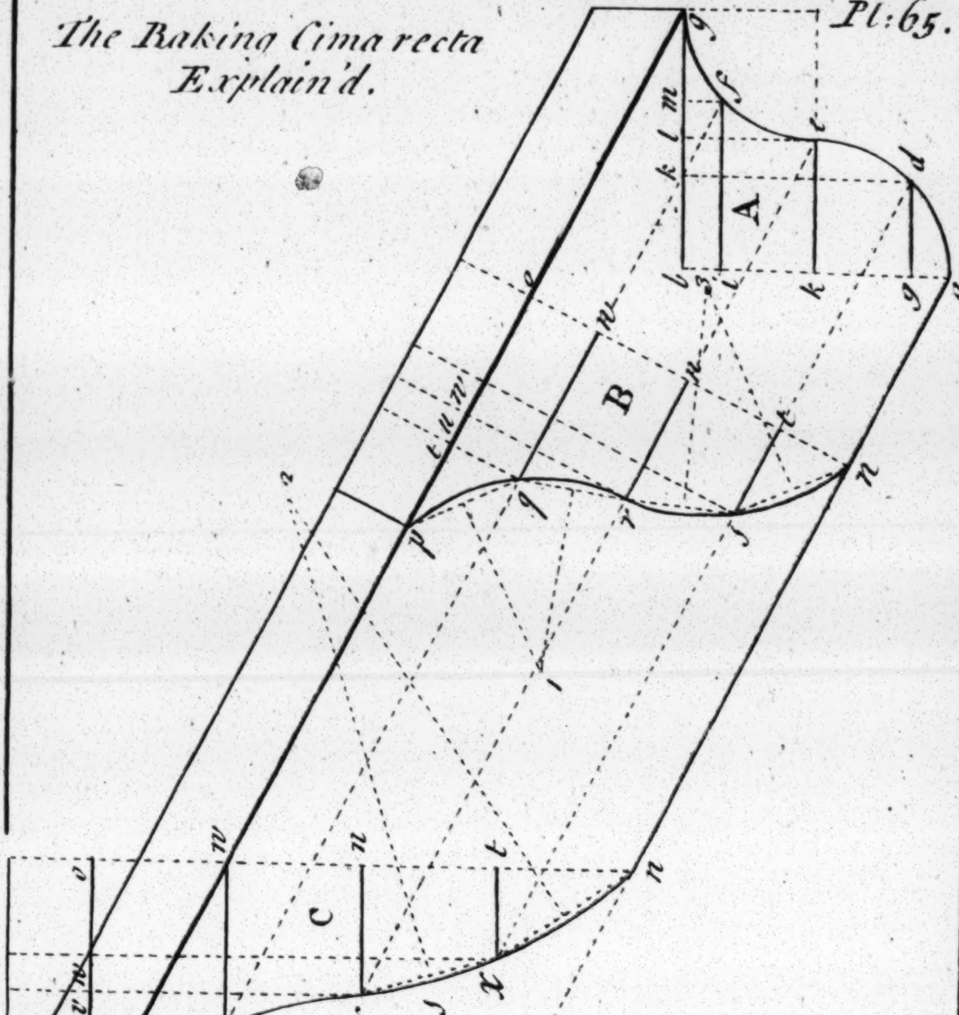
Make yᵉ Projections 4.5.6. at A equal to yᵉ Projec.ns 4.5.6 at B

The Dorick & Ionick open Pediment Explain'd. Pl. 64



The Raking Cima recta Explain'd.

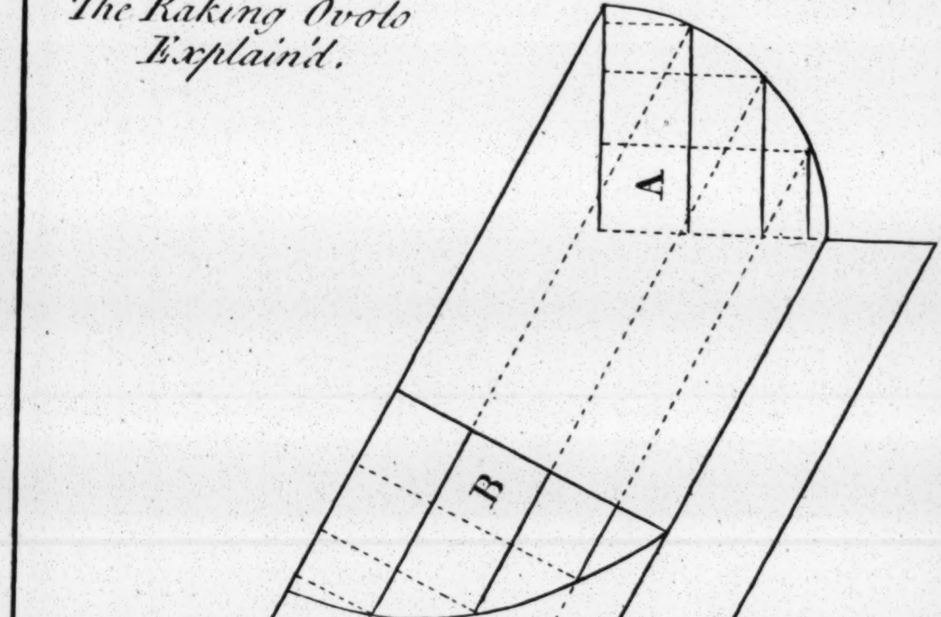
Pl: 65.



T. L. Sculp.

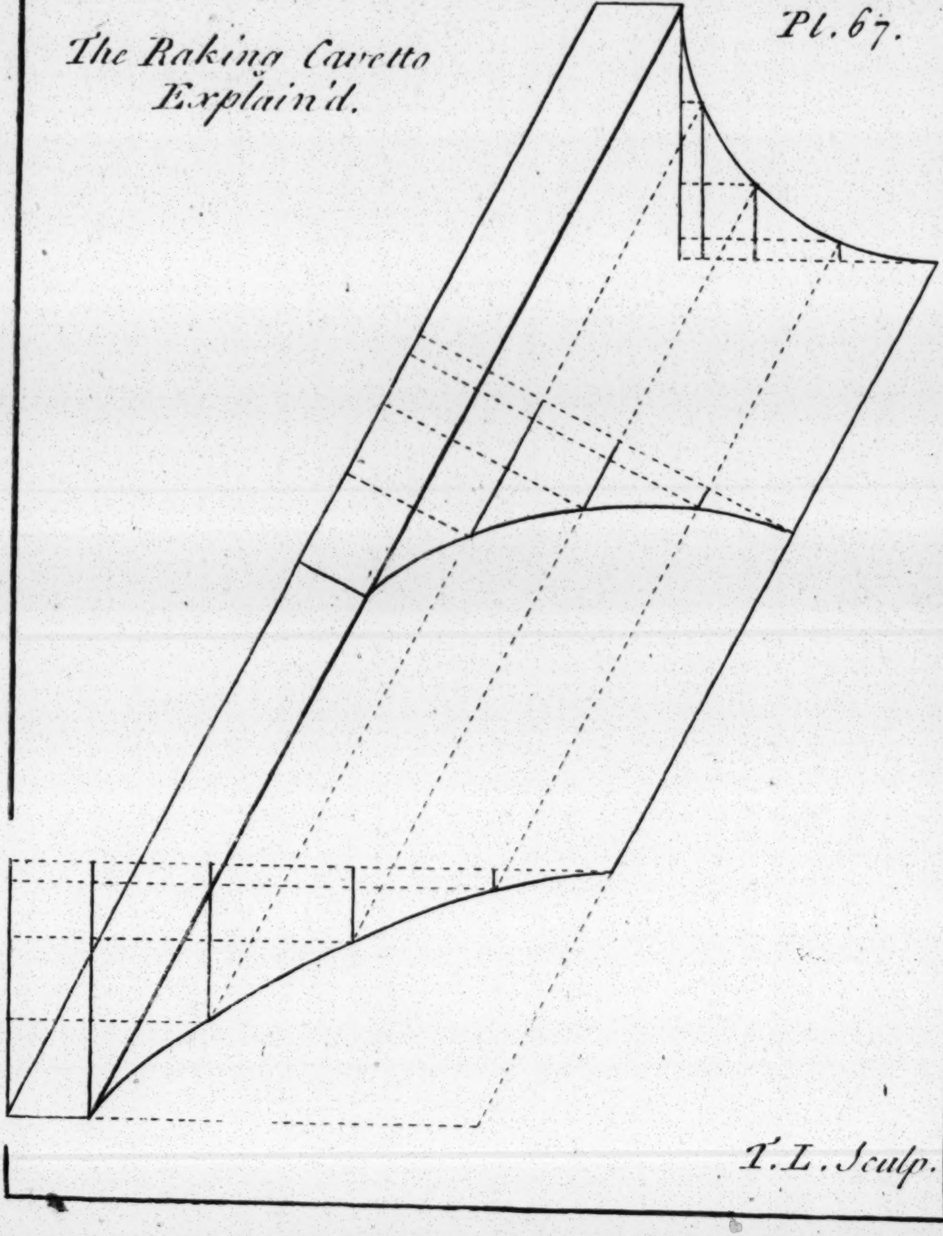
The Raking Ovolo Explain'd.

Pl. 66.



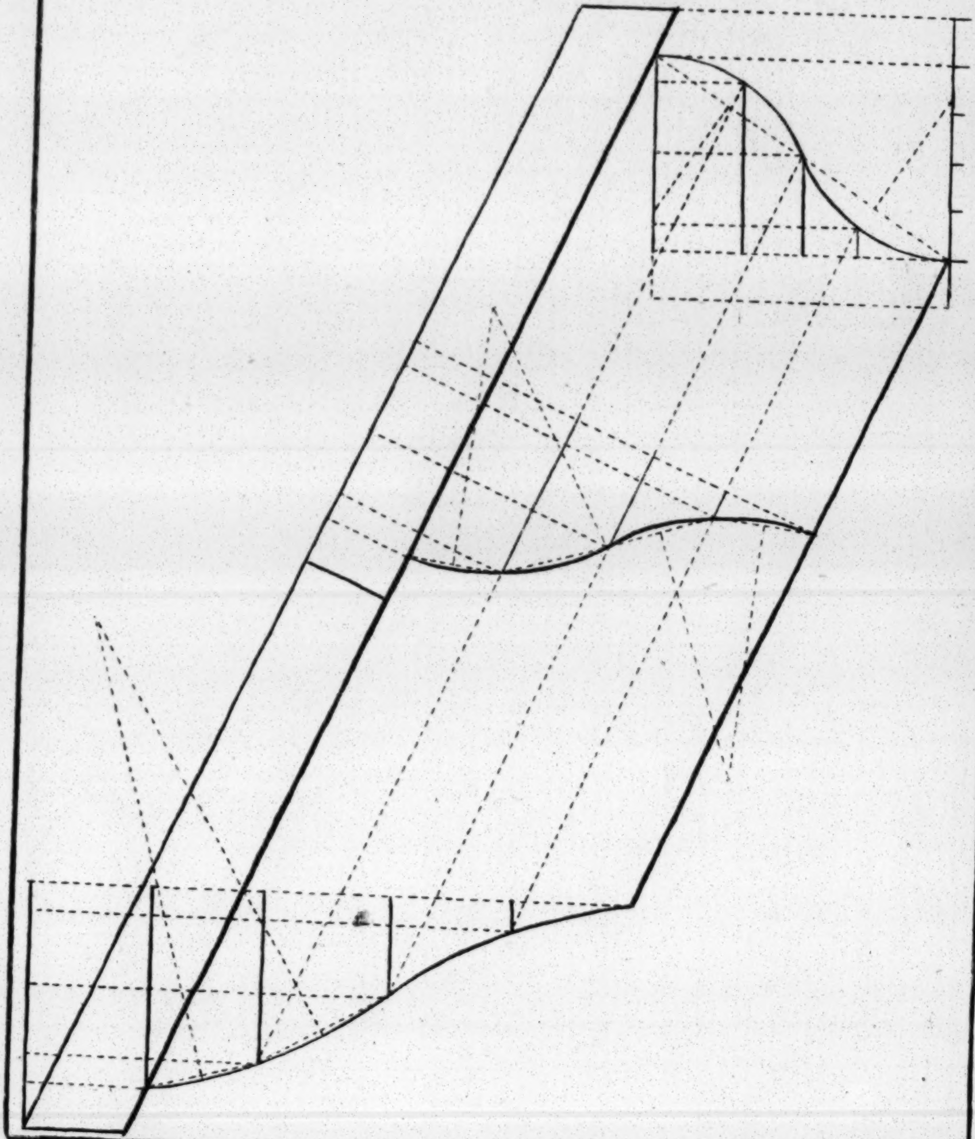
T. L. Sculp.

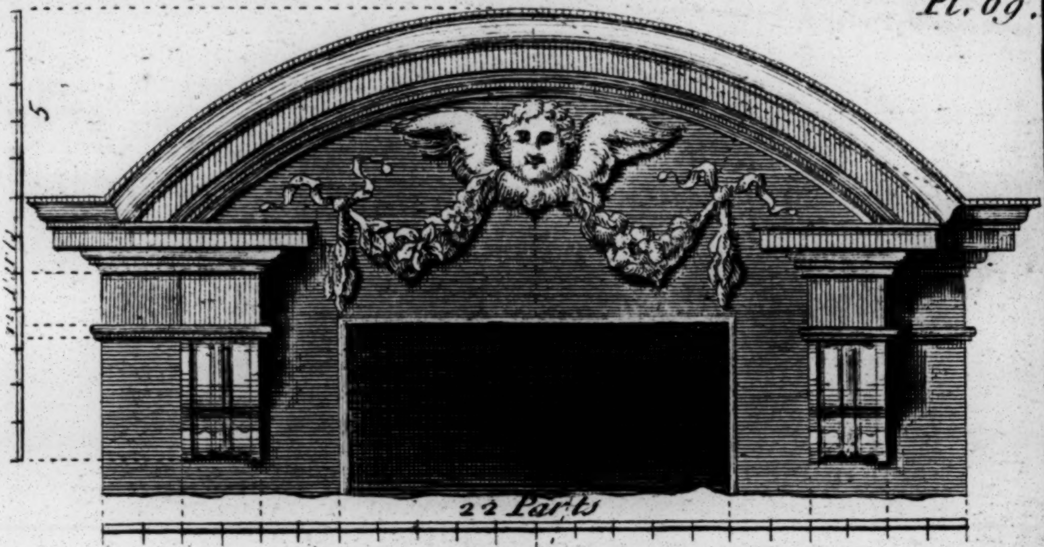
The Raking Cavetto Explain'd.



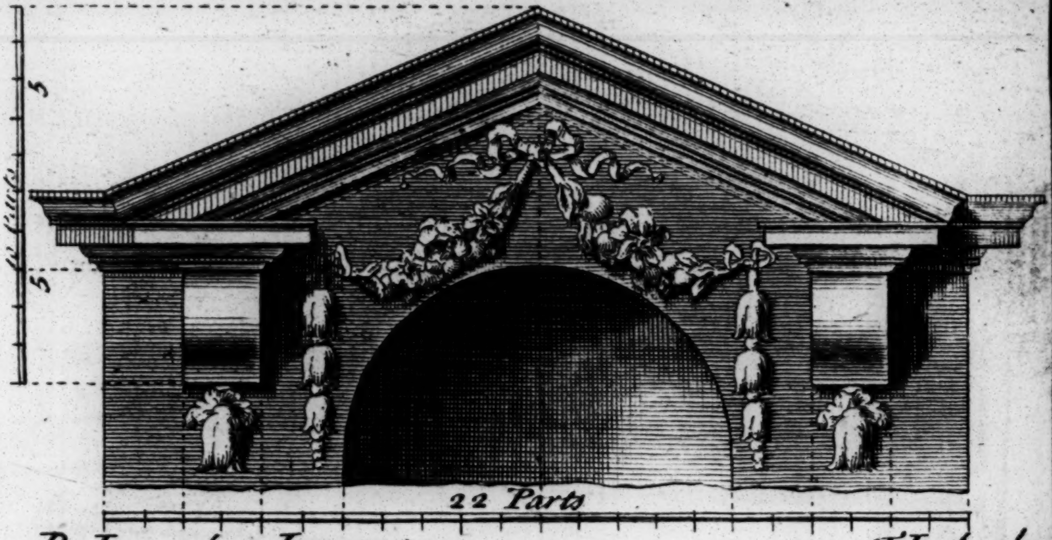
T. L. Sculp.

The Raking Cima reversa Explain'd.



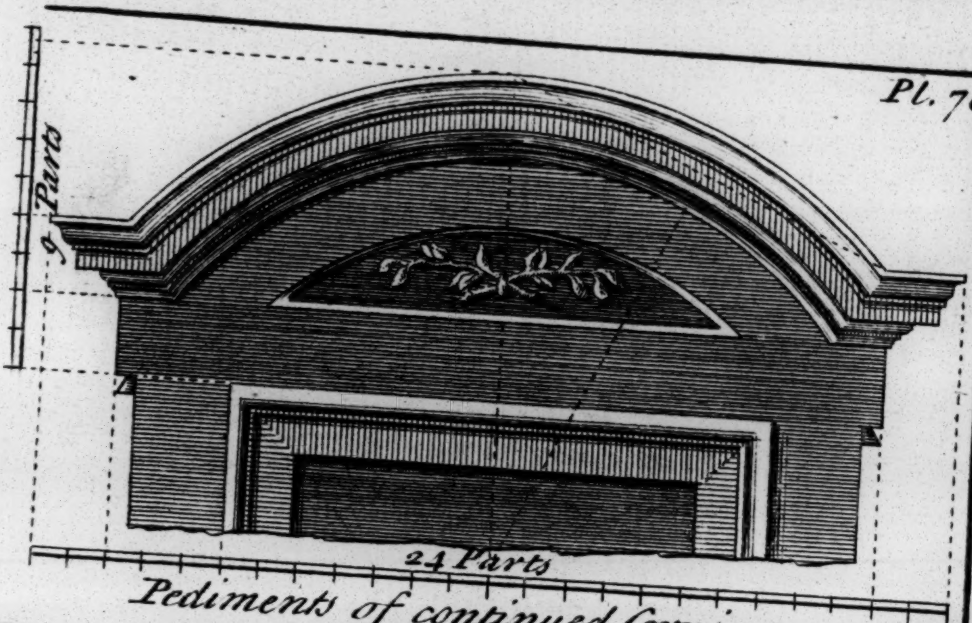


Open Bed mould Pedim.ts

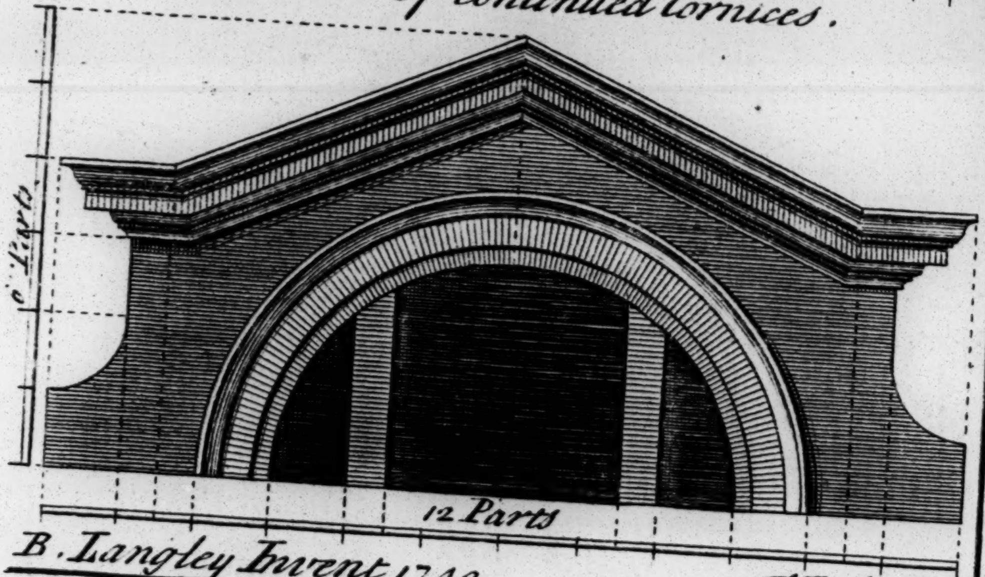


B. Langley Invent 1740

T.L. Sculp.



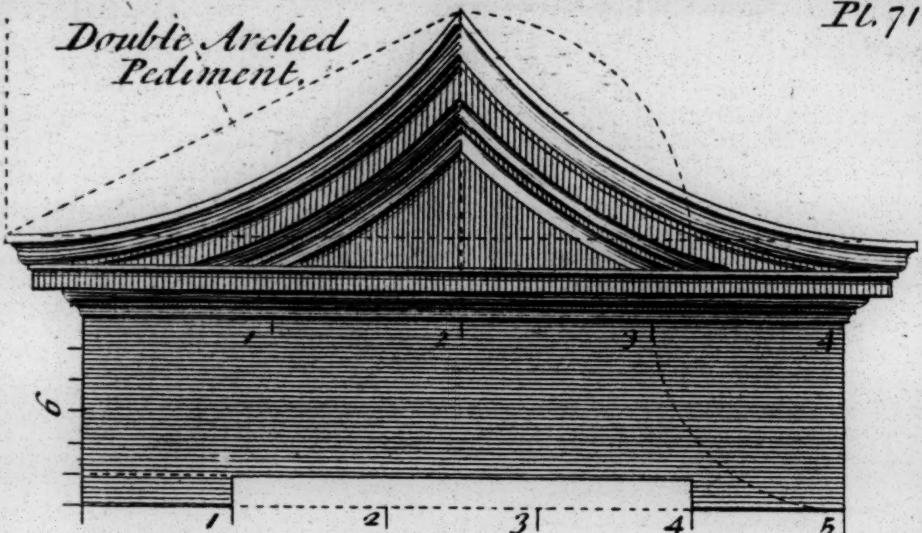
Pediments of continued Cornices.



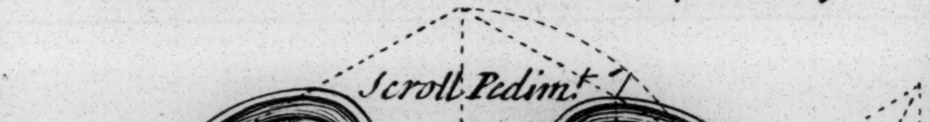
B. Langley Invent 1740.

T. L. Sculp.

Double Arched Pediment.



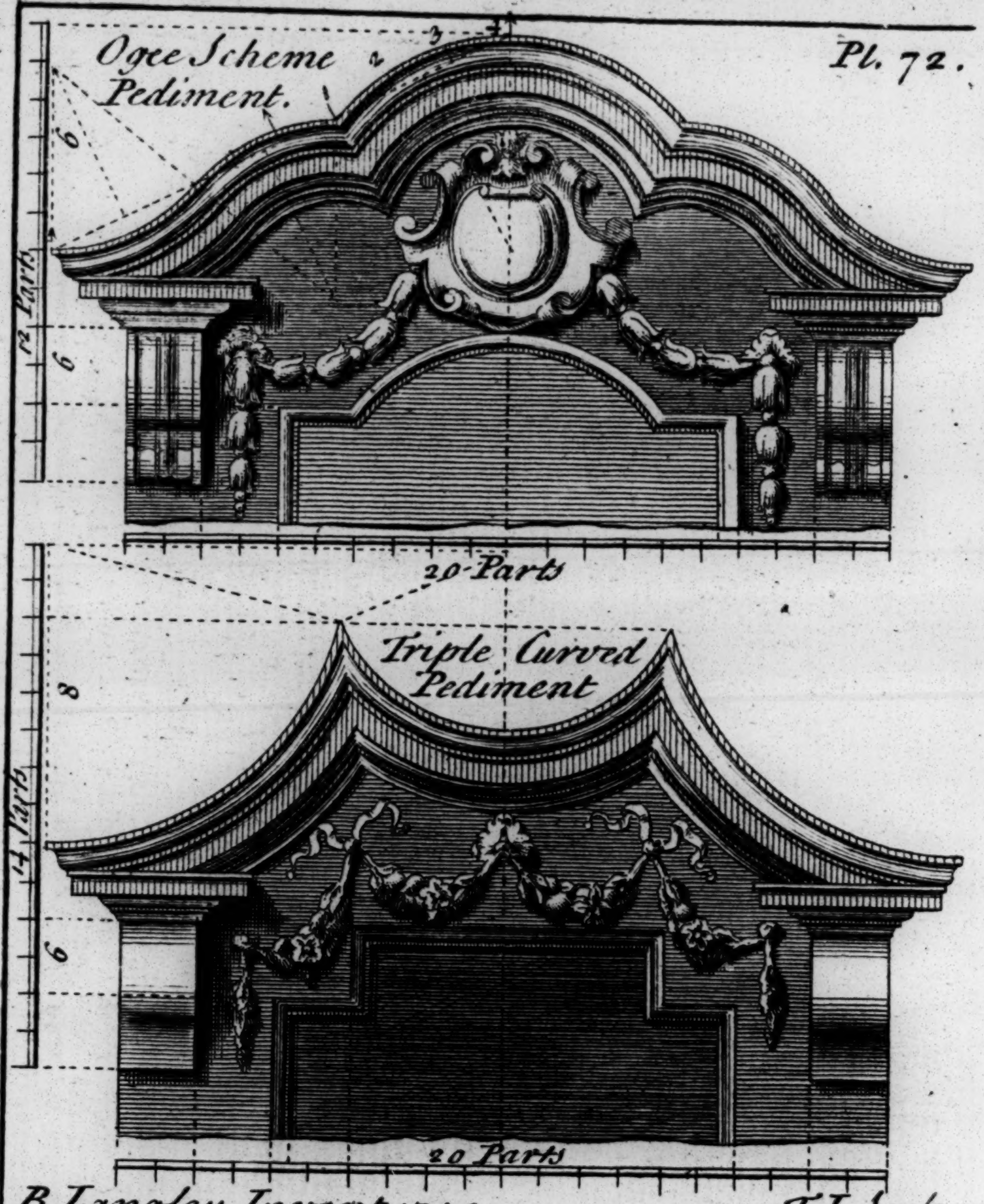
Scroll Pedim.t



B. L. Invent 1740.

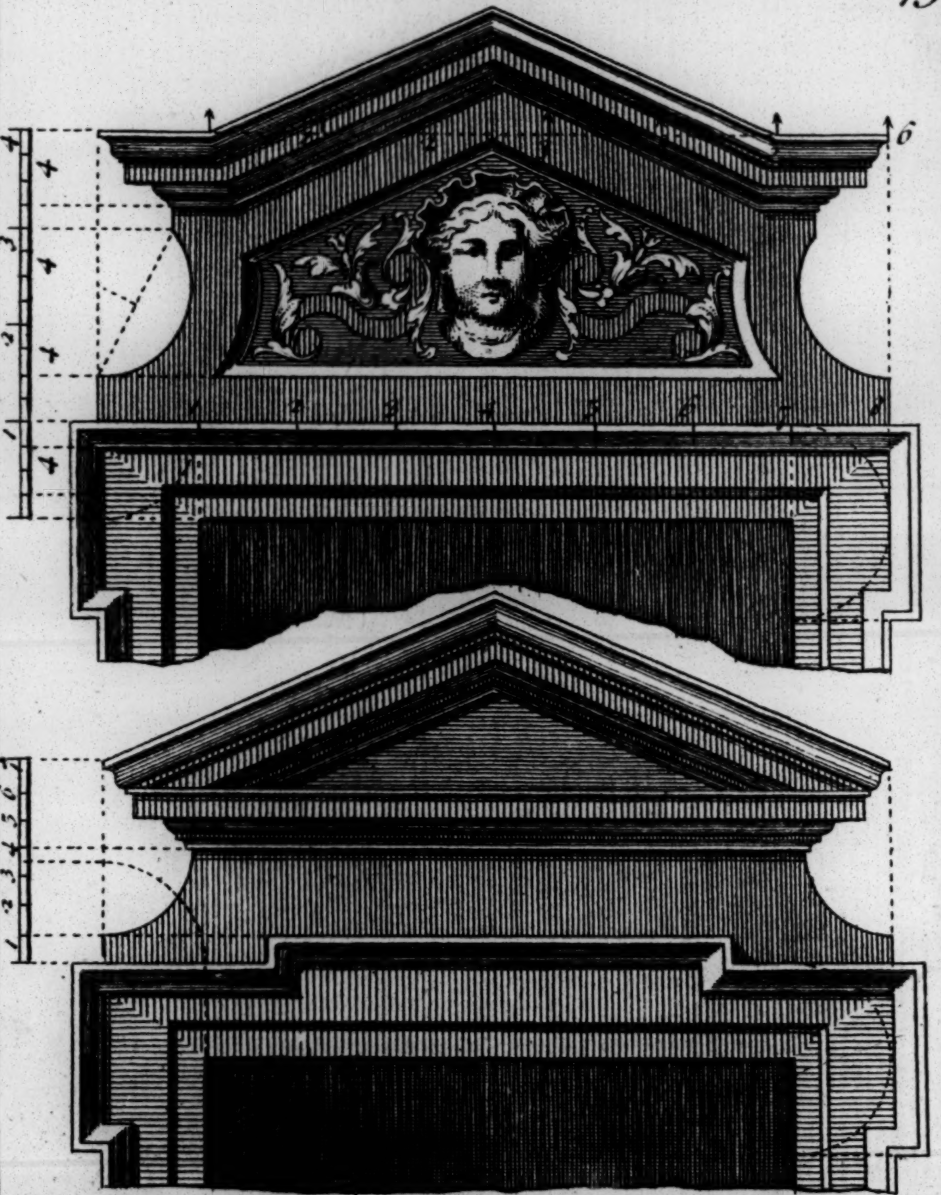
T. L. Sculp.

Pl. 72.



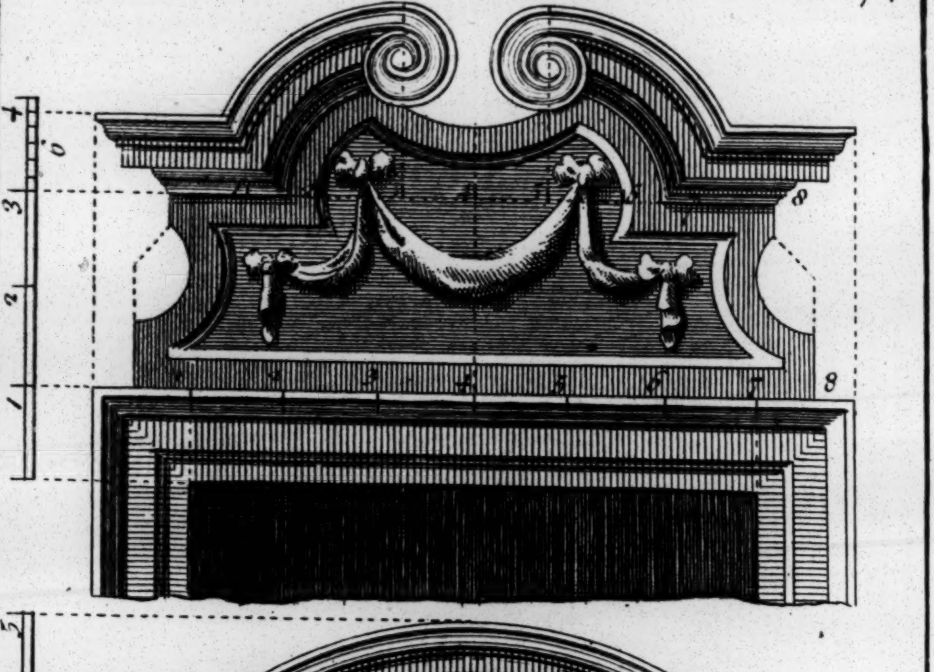
B. Langley Invent 1740. T. L. Sculp.

Contracted Pediments.



B. Langley Invent 1741. T. L. Sculp.

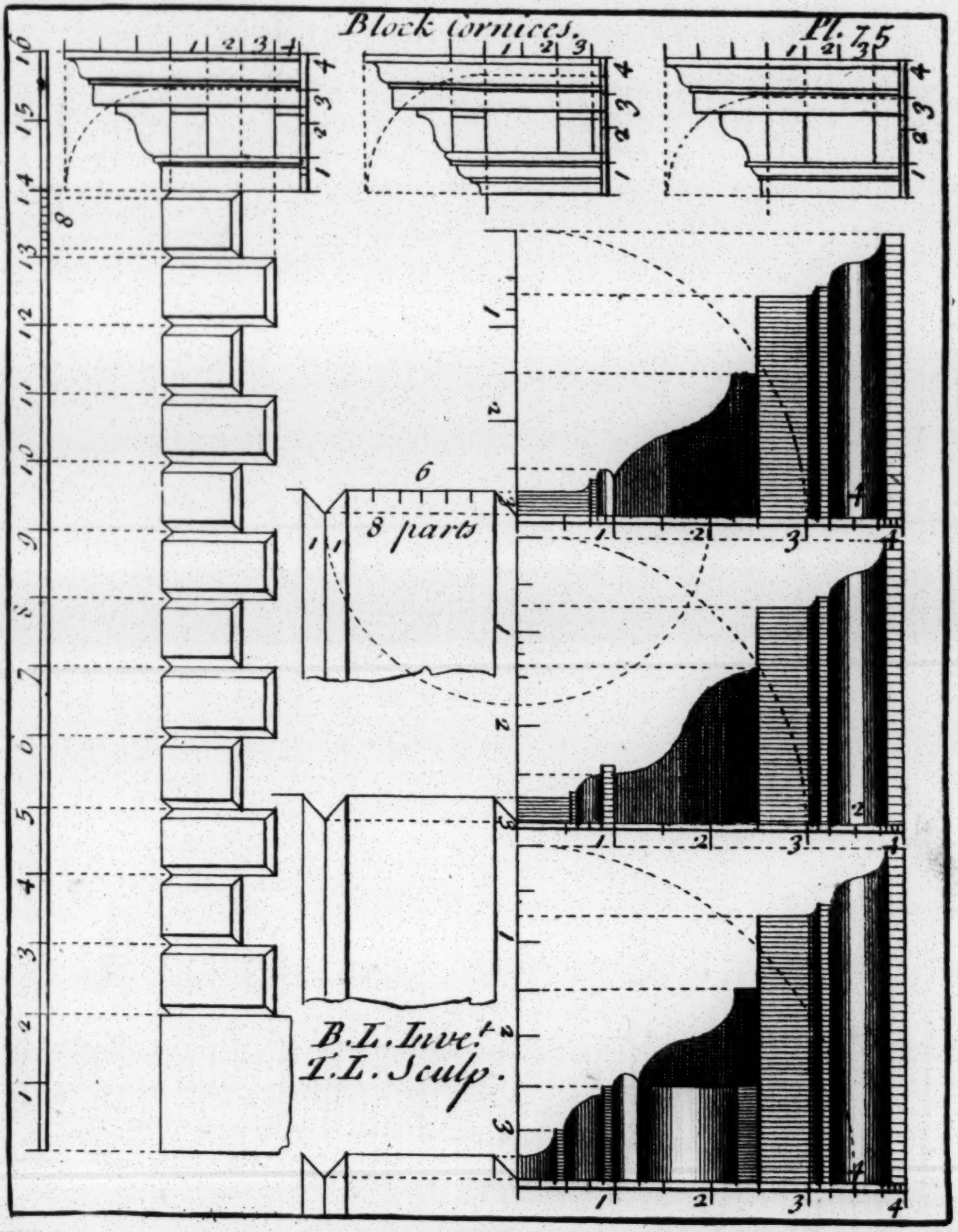
Contracted Scroll Pediments. *Pl. 74.*



B. Langley Invent 1741. *T. L. Sculp.*

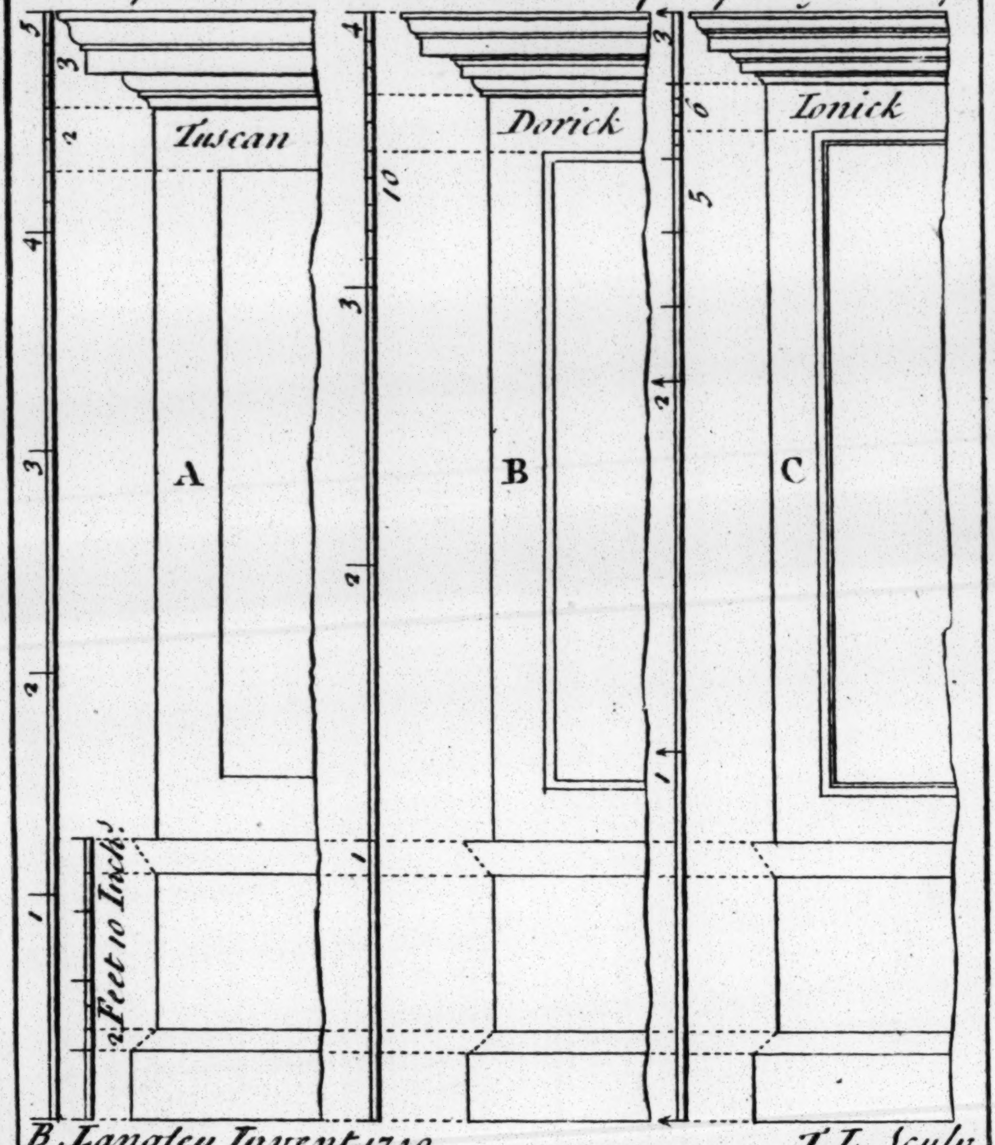
Block Cornices.

Pl. 75



B. L. Invet.
T. L. Sculp.

To Proportion Cornices to Rooms of any Height. Pl. 76

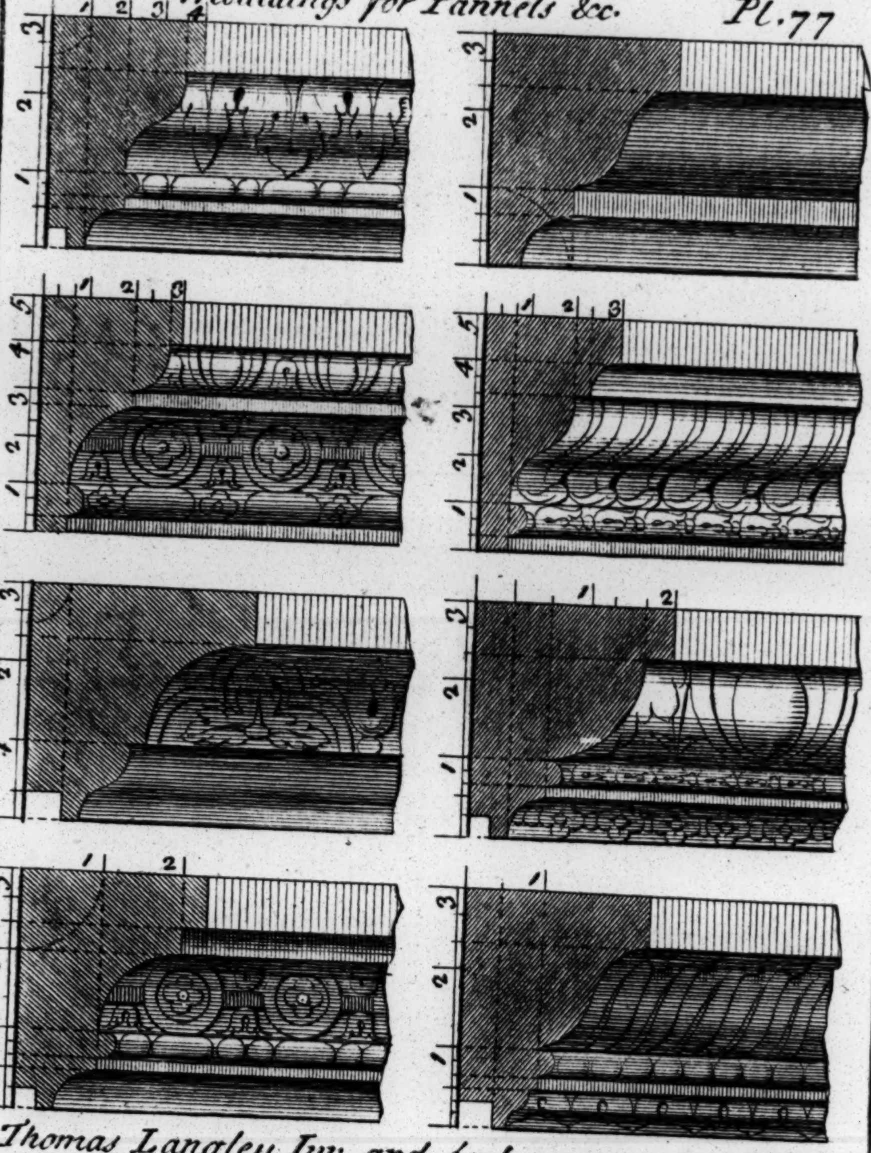


B. Langley Invent 1740.

T. L. Sculp.

Mouldings for Pannels &c.

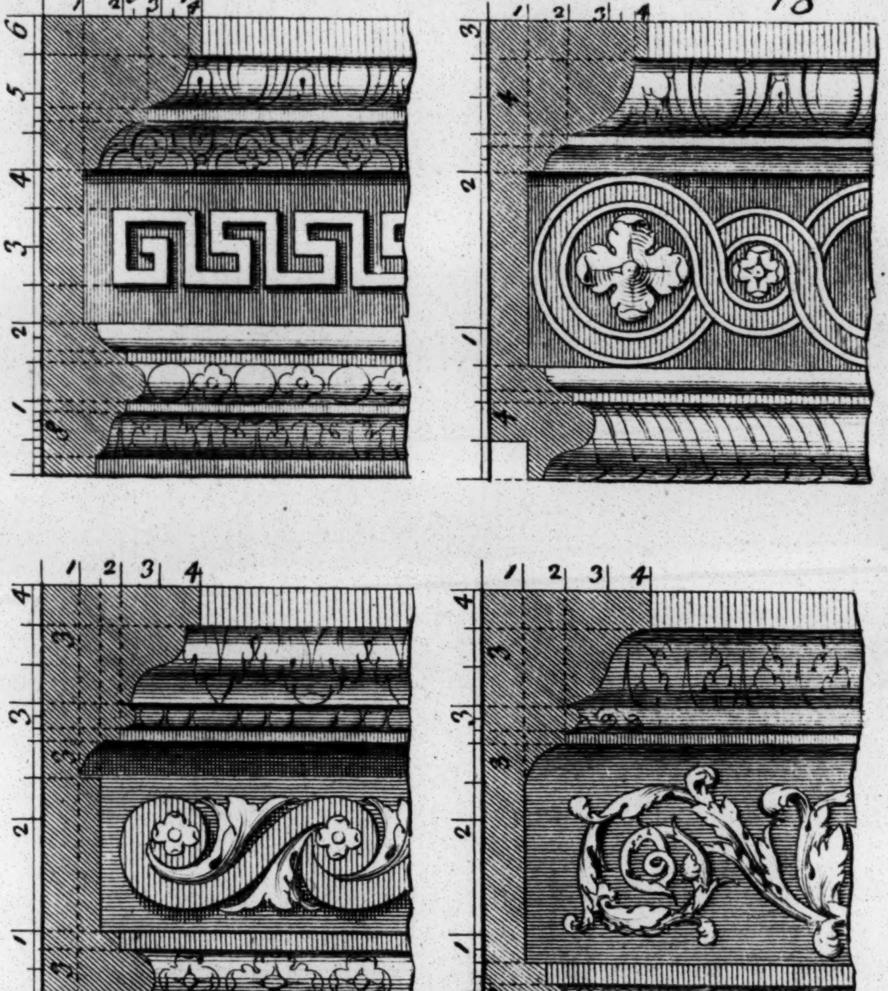
Pl. 77



Thomas Langley Inv. and Sculp. 1741.

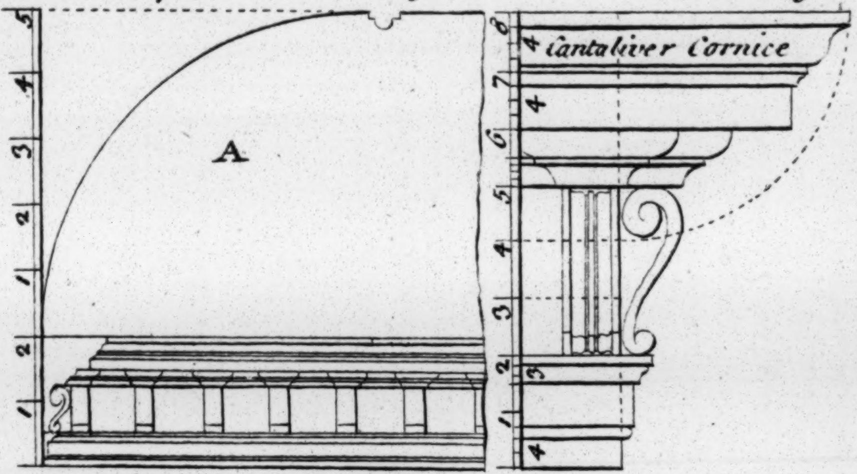
Mouldings for Tabernacle Frames.

Pl. 78

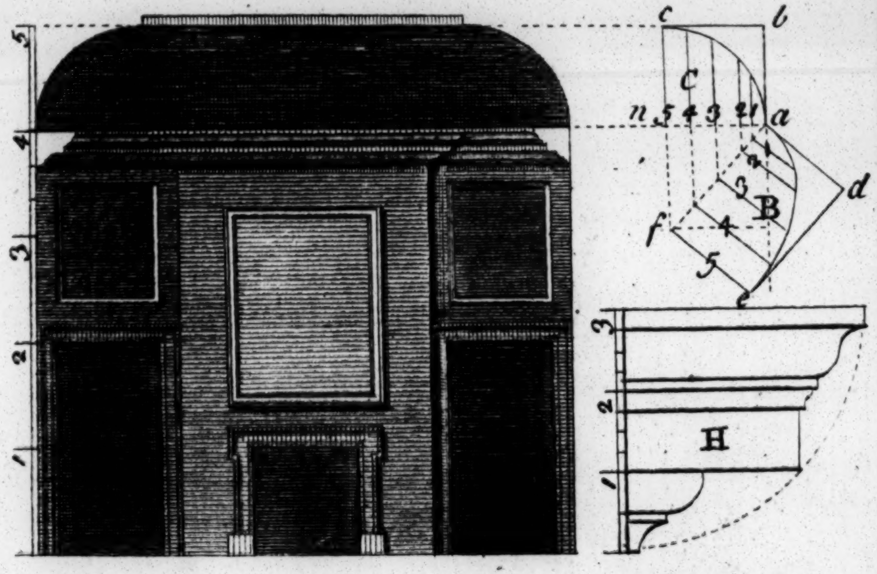


Thomas Langley Inv. and Sculp. 1741

A Cove $\frac{1}{4}$ of the entire Height.



A Cove $\frac{1}{5}$ of the entire Height.

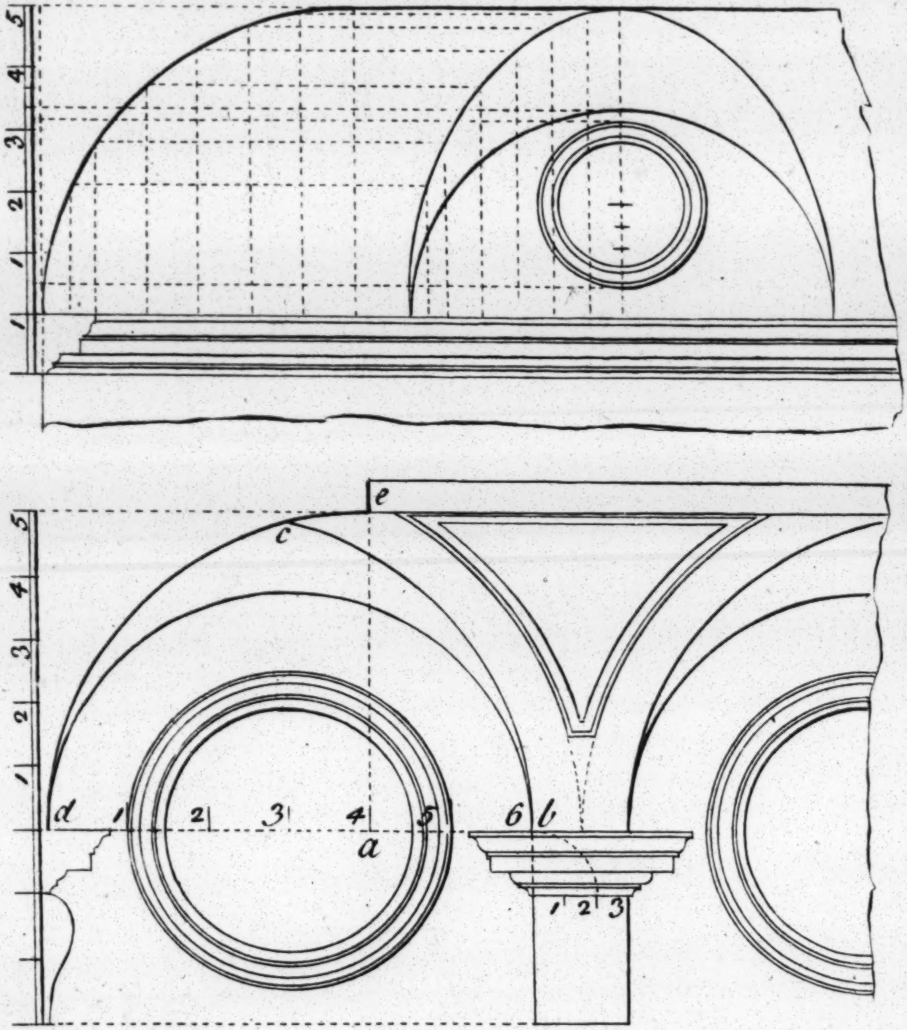


B.L. Inv. 1741.

T.L. ſculp.

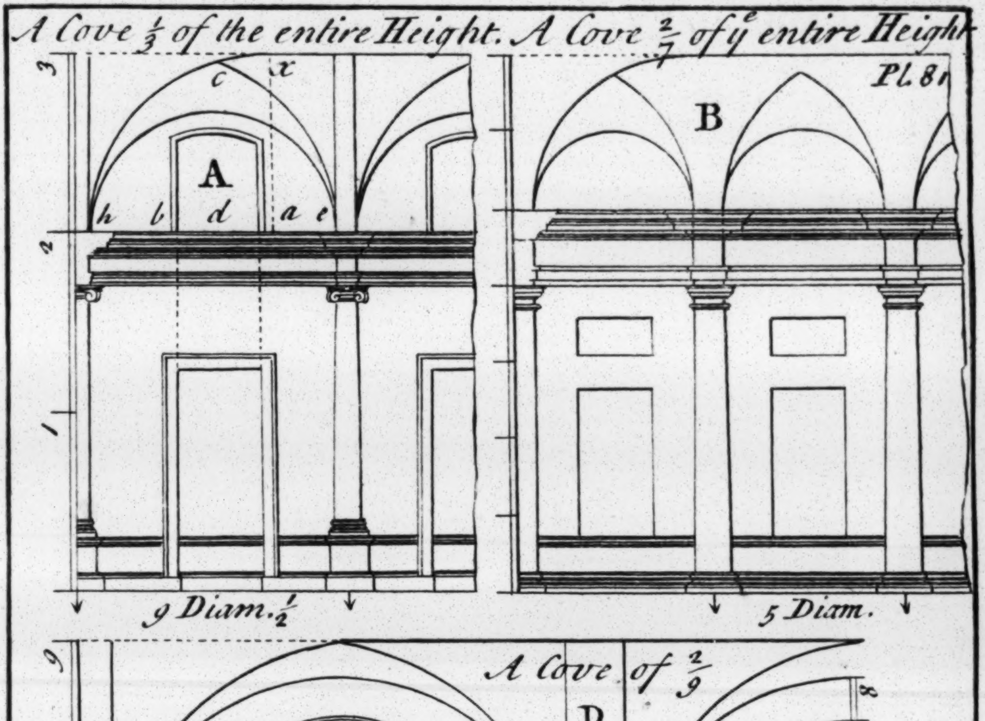
Coves $\frac{1}{6}$ of the entire Height.

Pl. 80.



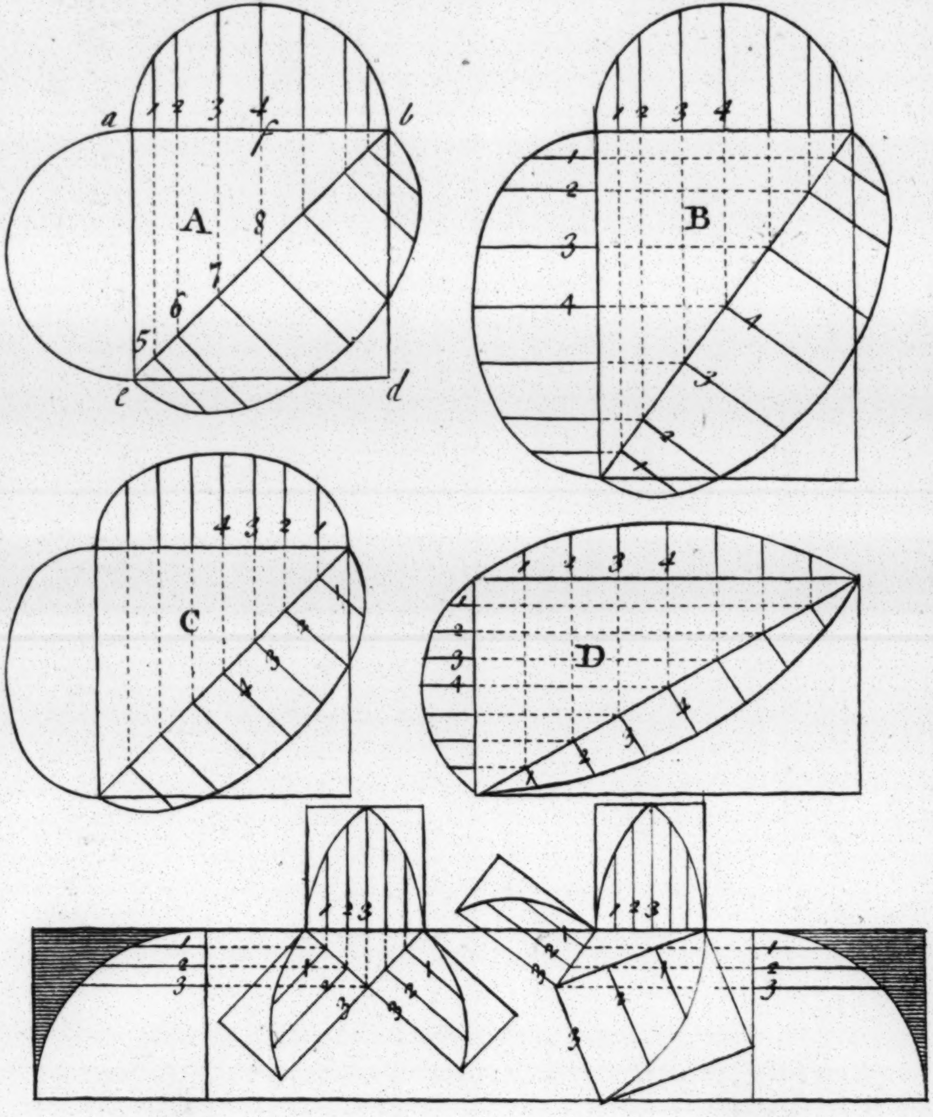
B.L. Inv. 1741.

T.L. Sculp.



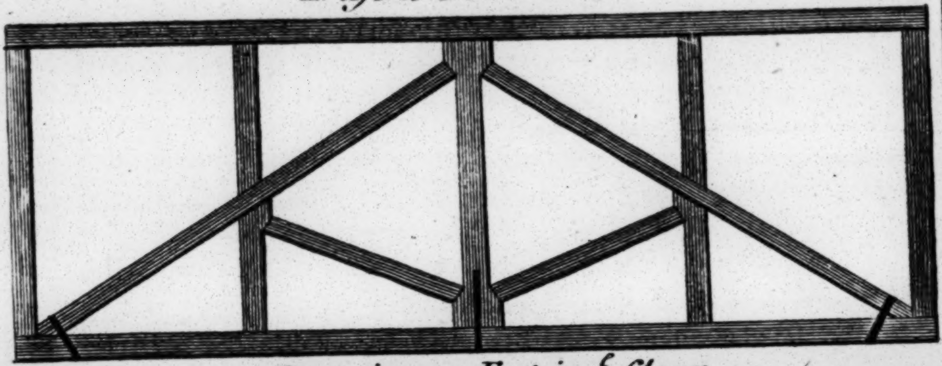
B. Langley Invent 1741.

Centering for Groins. Pl. 82.

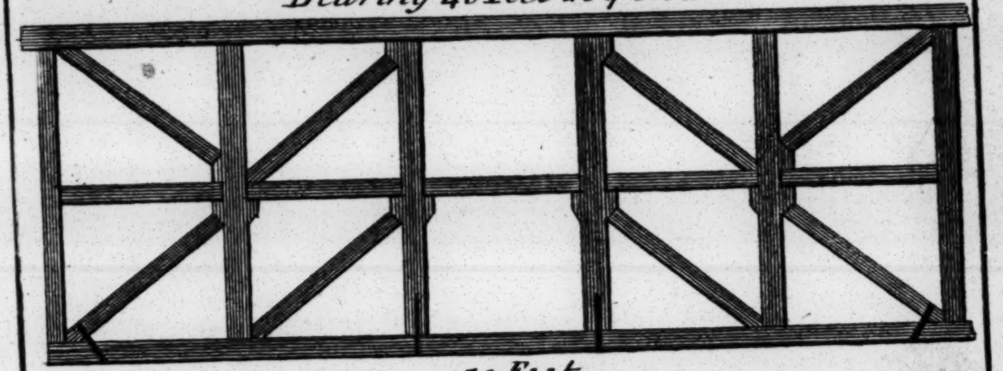


Truſs'd Partitions.

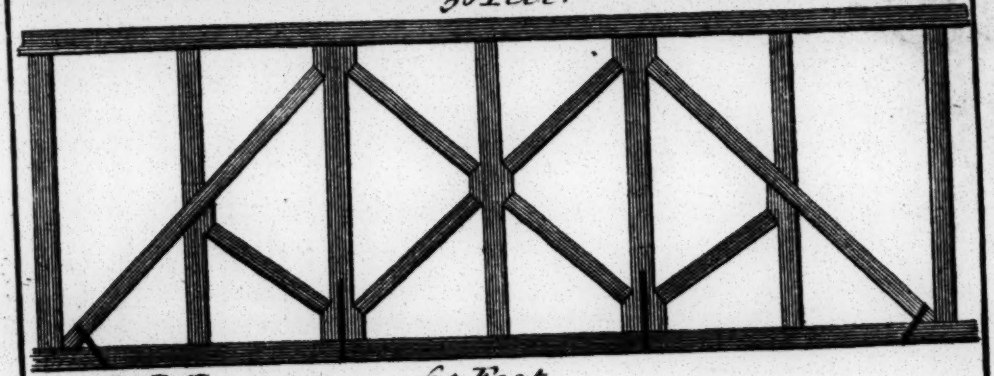
Pl. 83.



Bearing 40 Feet in ye Clear.

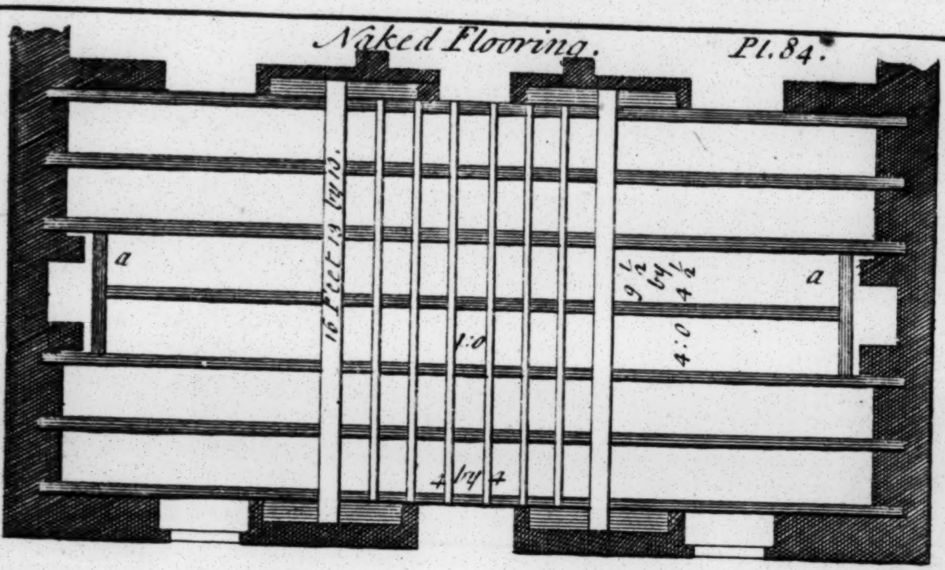


50 Feet.

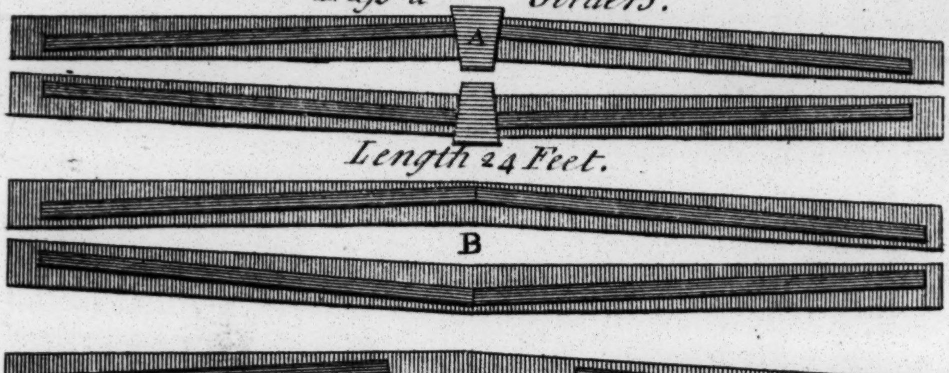


B. L. Inv: 1741. 60 Feet.

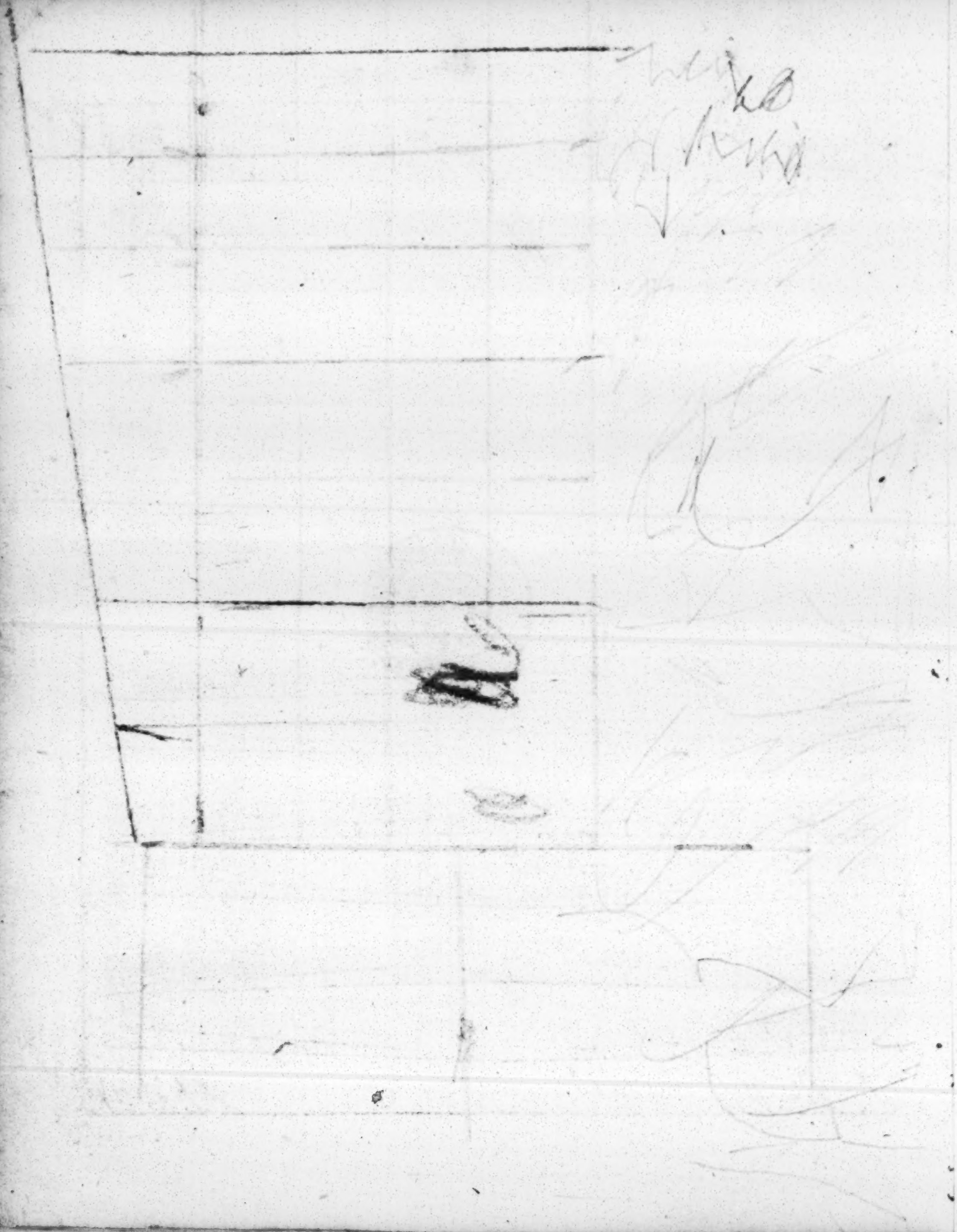
Naked Flooring. *Pl. 84.*



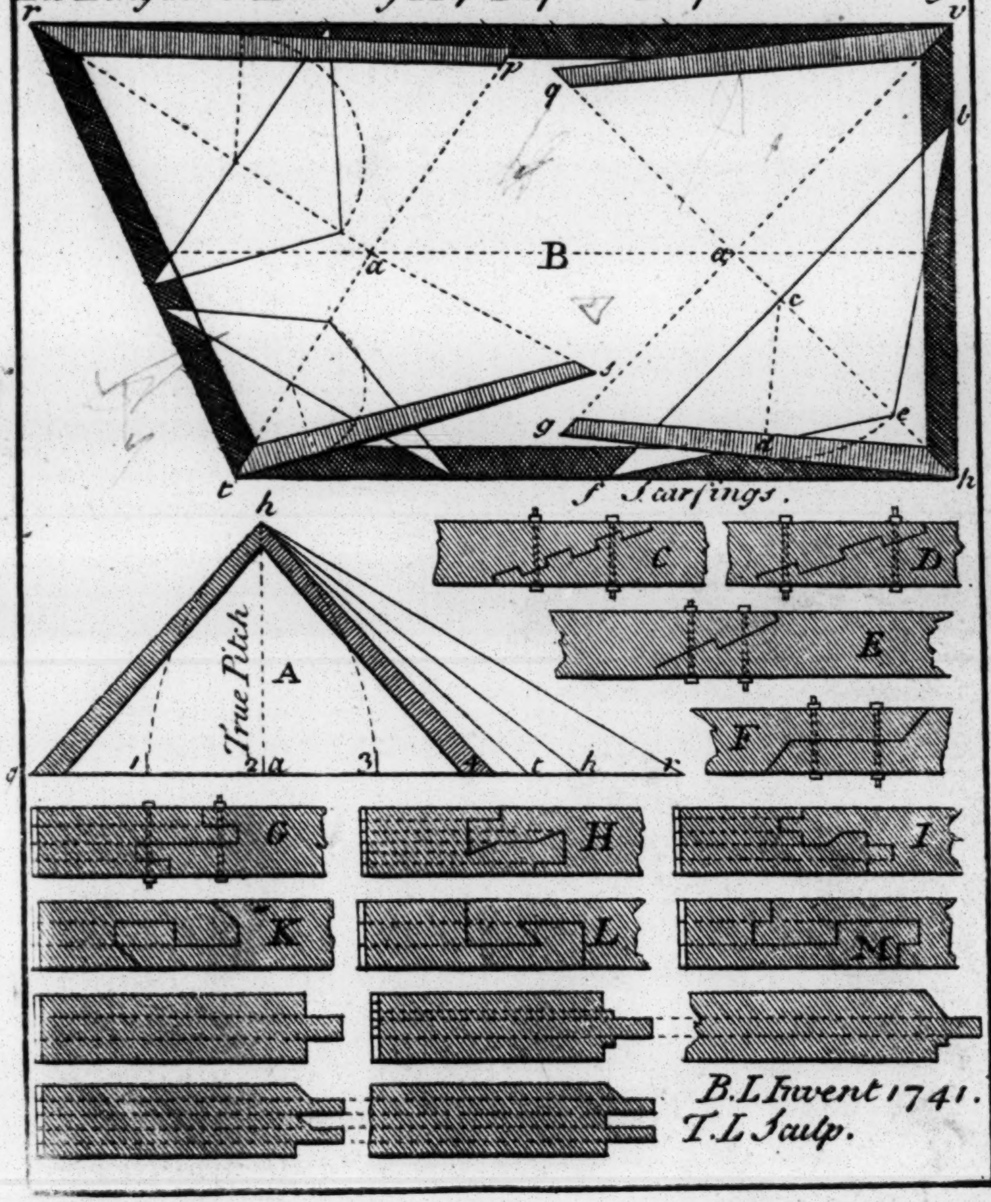
Truſs'd Girders.



B. Langley Inv: 1741. *T.L. Sculp*

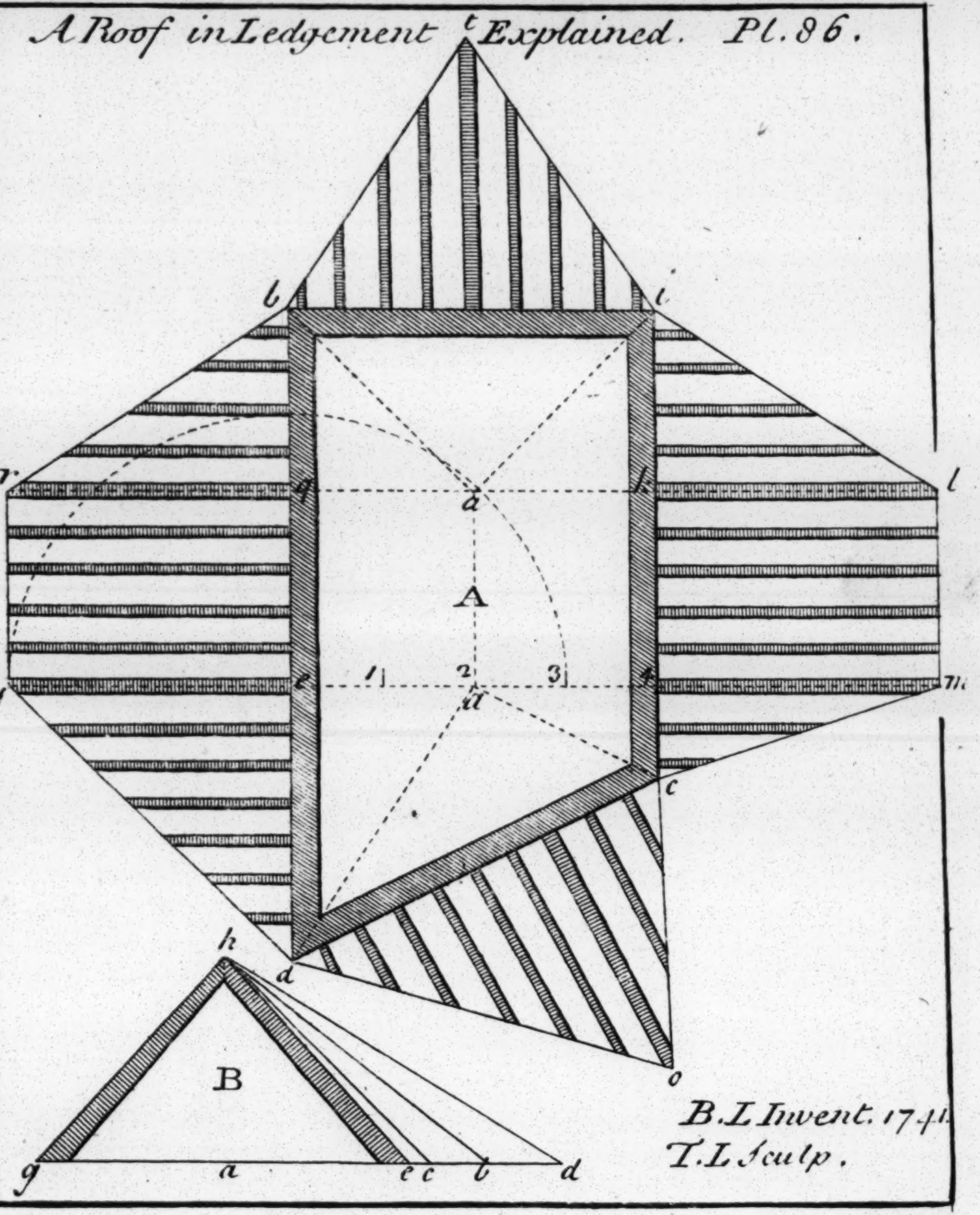


The Lengths & Backs of Hip Rafters. Explained Pl. 85



B.L Invent 1741.
T.L ſculp.

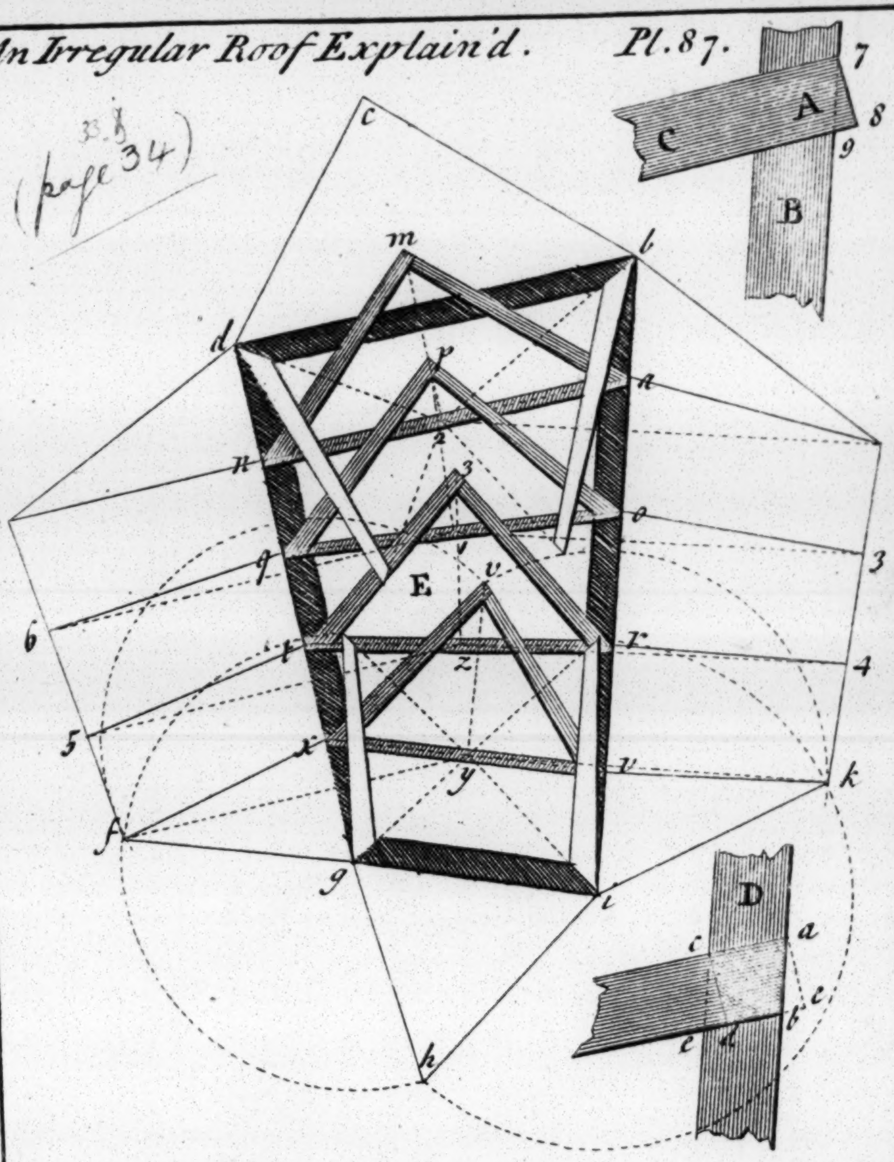
A Roof in Ledgement Explained. Pl. 86.



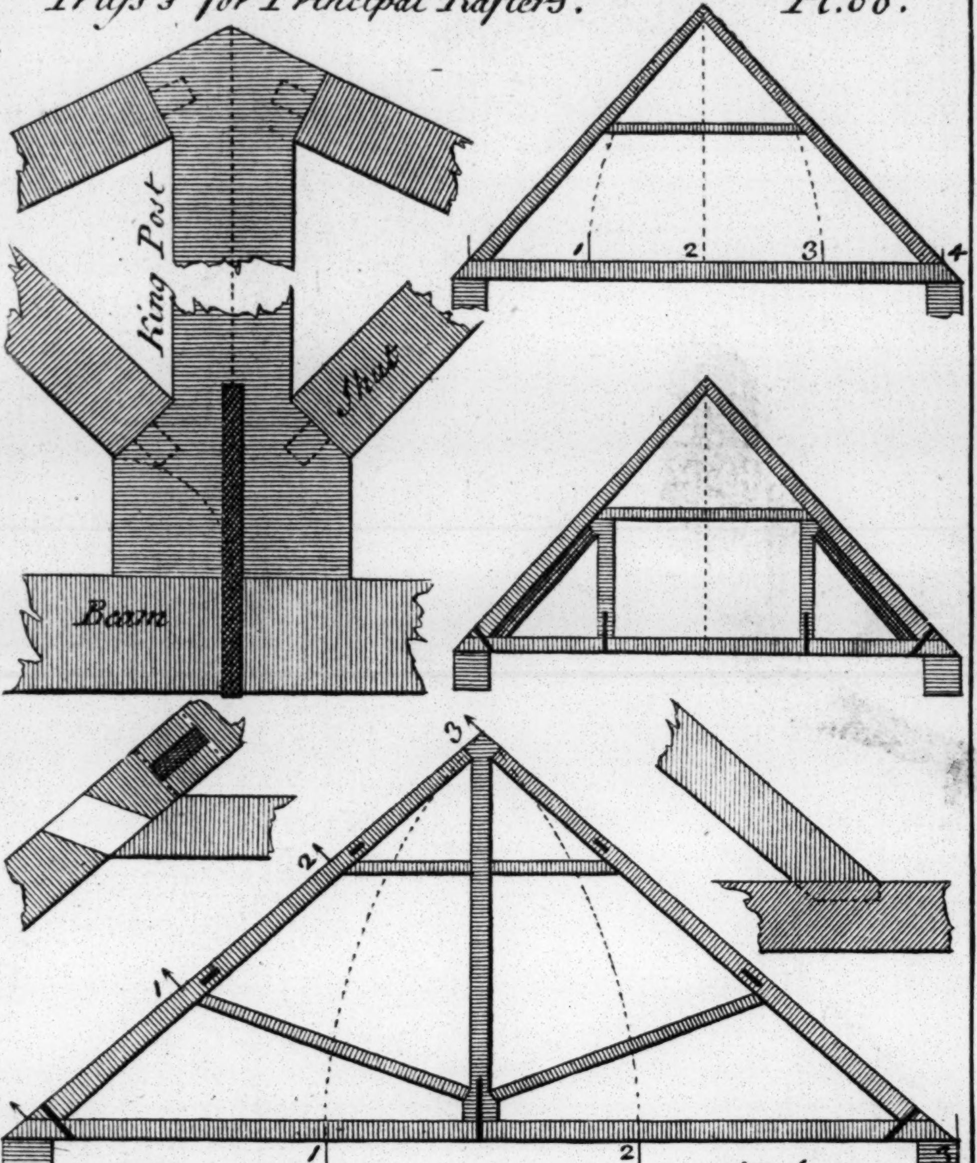
B. L. Invent. 1741.
T. L. Sculp.

An Irregular Roof Explain'd. Pl. 87.

33.8
(page 34)

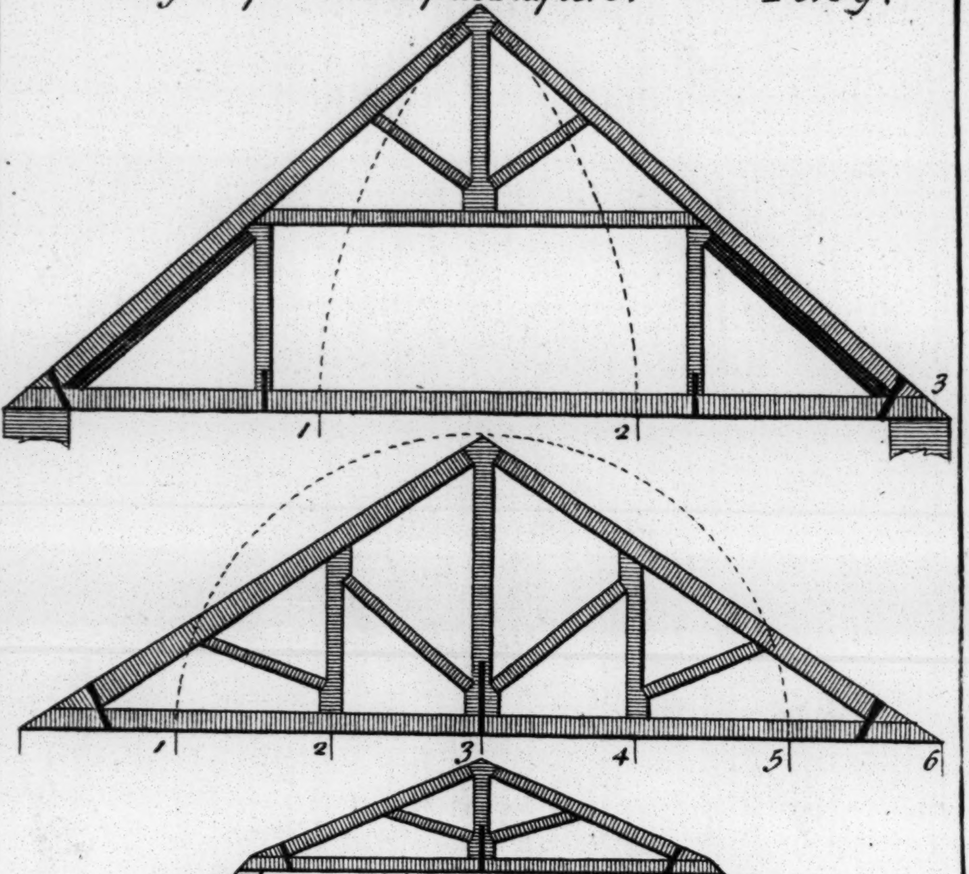


Truſs's for Principal Rafters. Pl. 88.



B.L. Invent 1740 T.L. Sculp.

Truſs's for Principal Rafters.

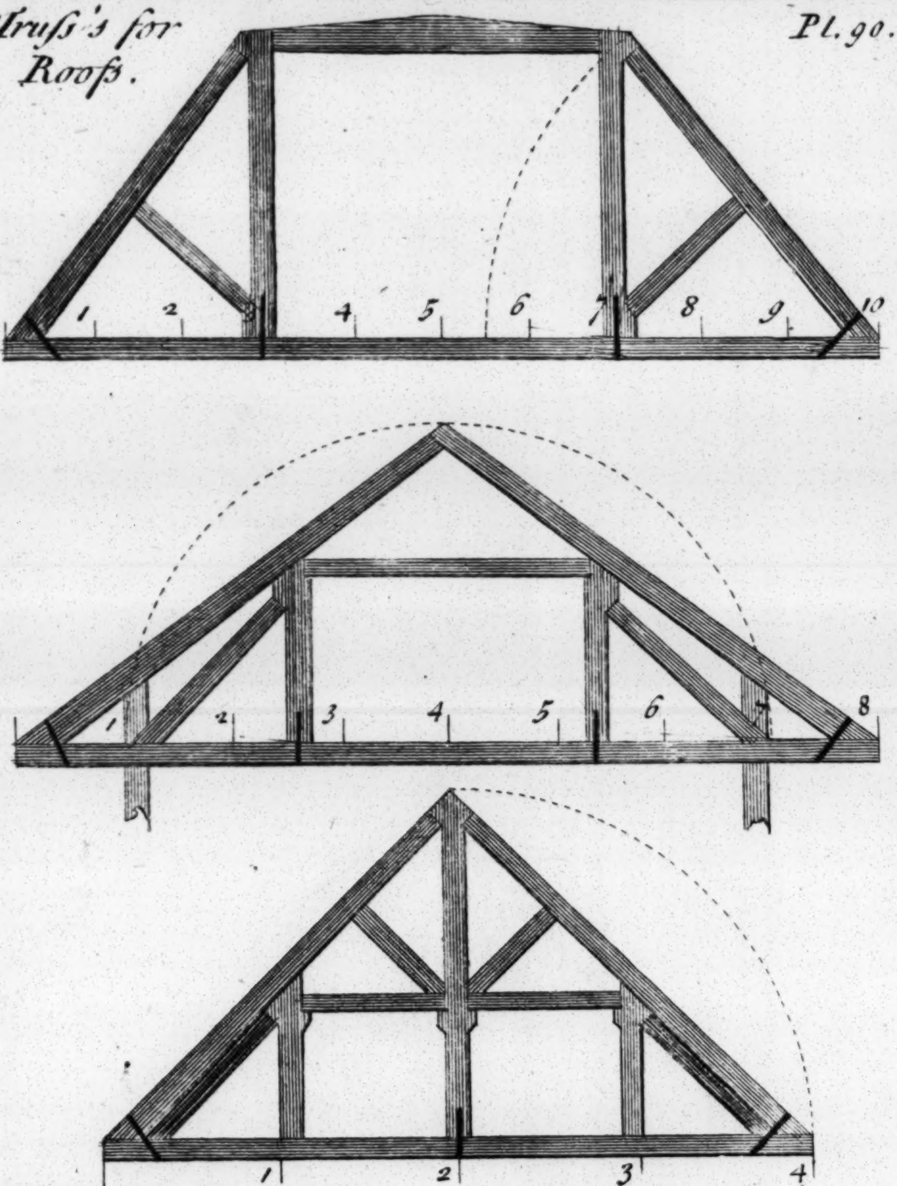


B. L. Invent. 1741

T. L. Sculp

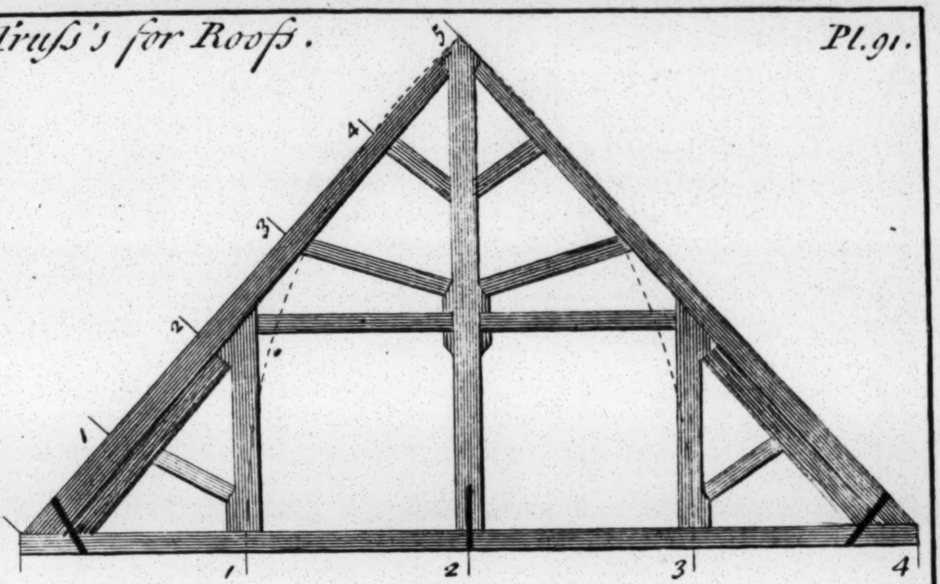
Truſs's for Rooſs.

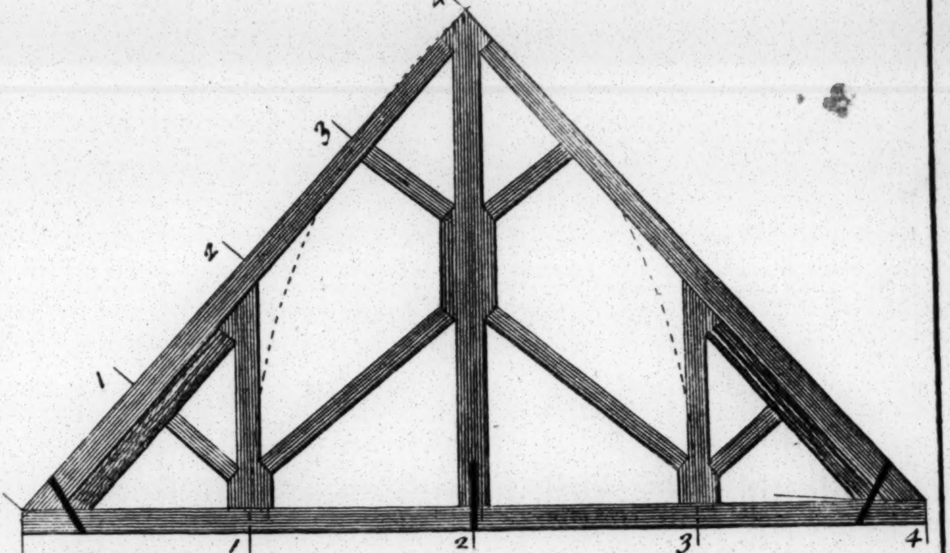
Pl. 90.



B. Langley Invent 1741.

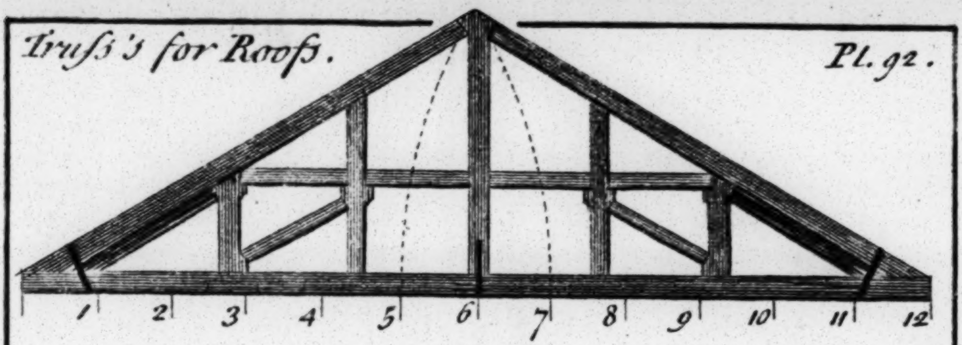
Truſs's for Rooſs.

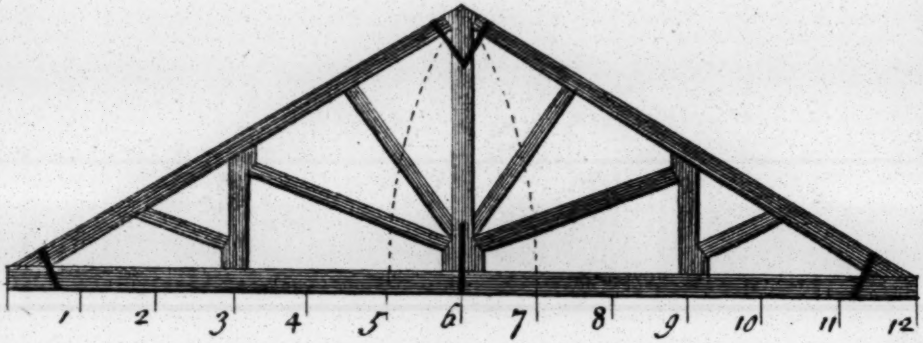


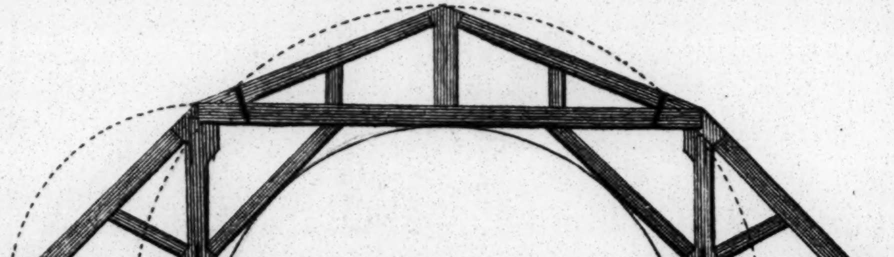


B. Langley Invent 1741.

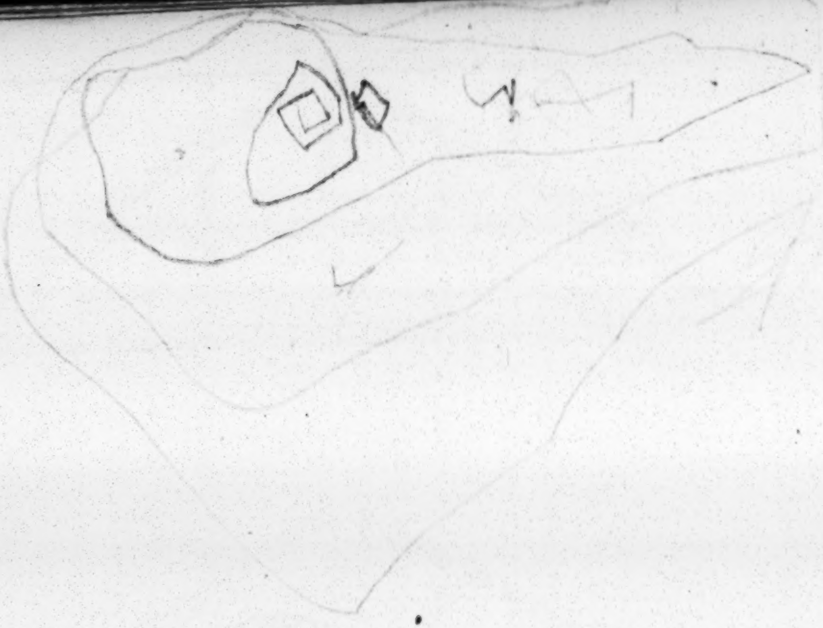
Truſs's for Rooſs. Pl. 92.



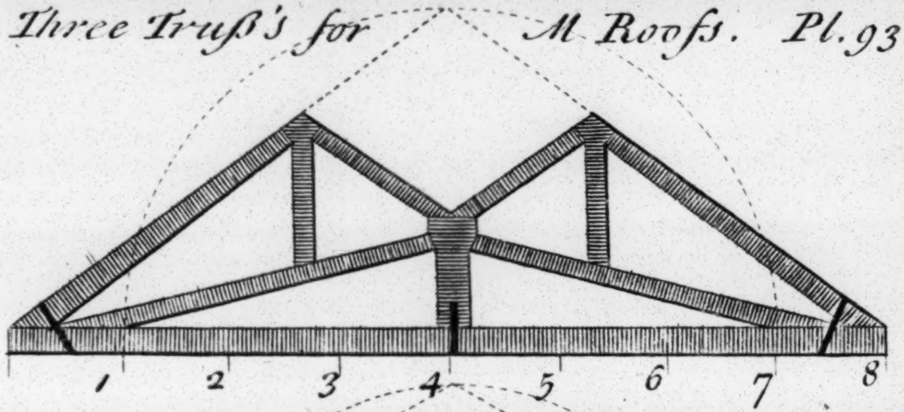


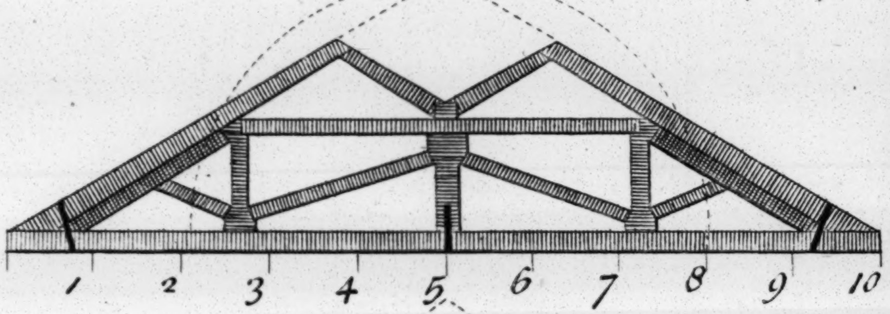


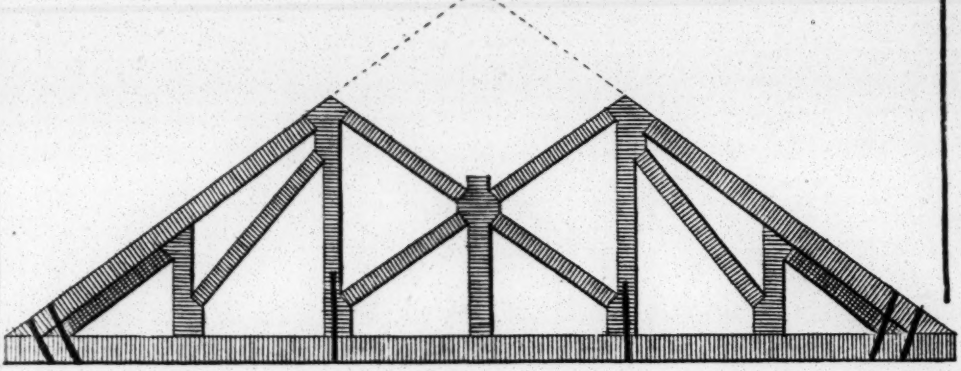
B. Langley Invent 1741.



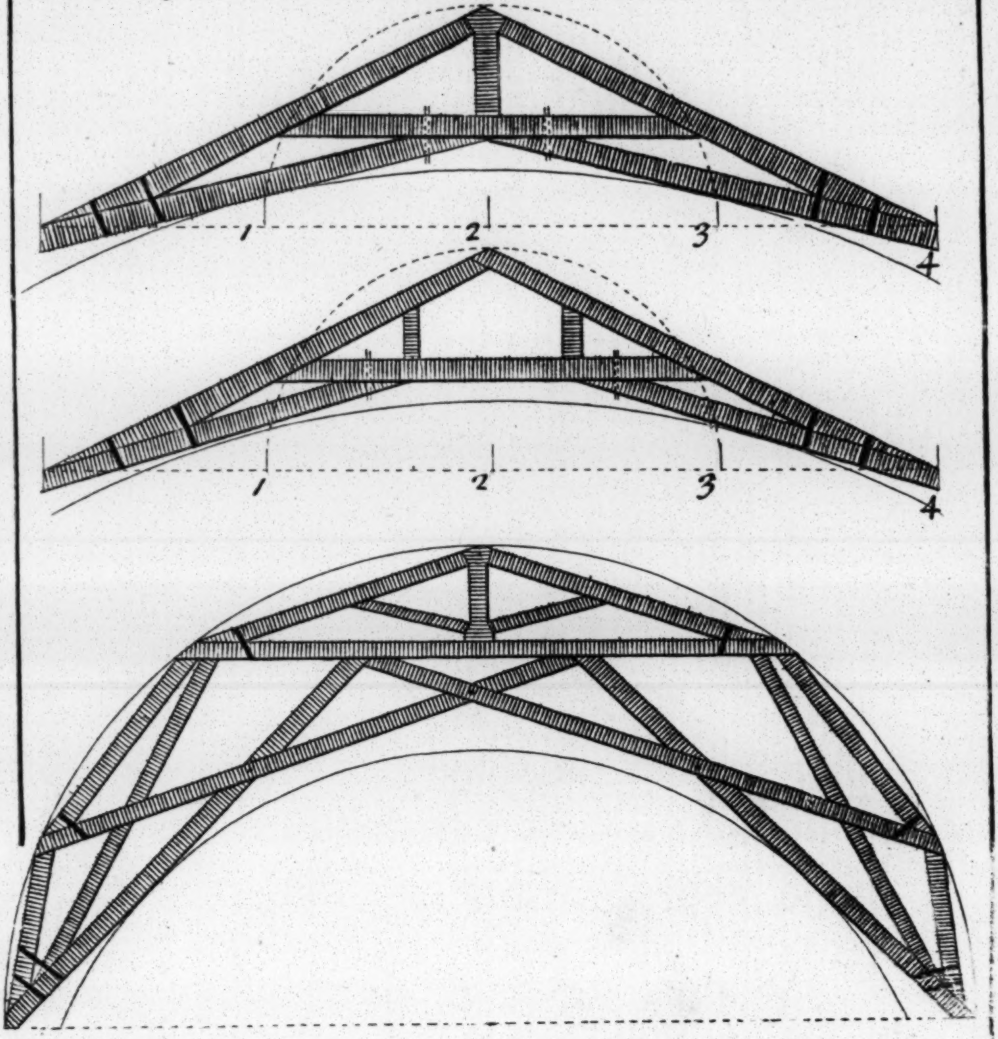
Three Truſs's for All Roofs. Pl. 93.



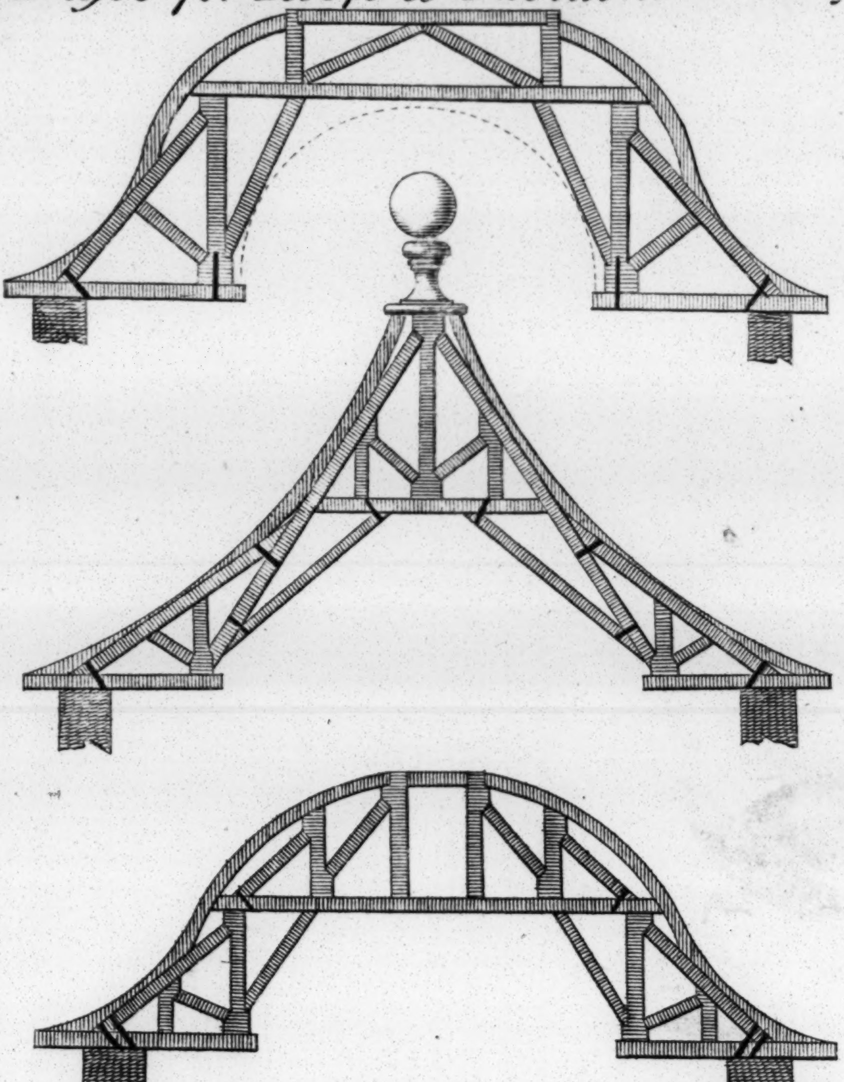




Truſs's, for Roofs, over arch'd Ciellings. Pl. 94

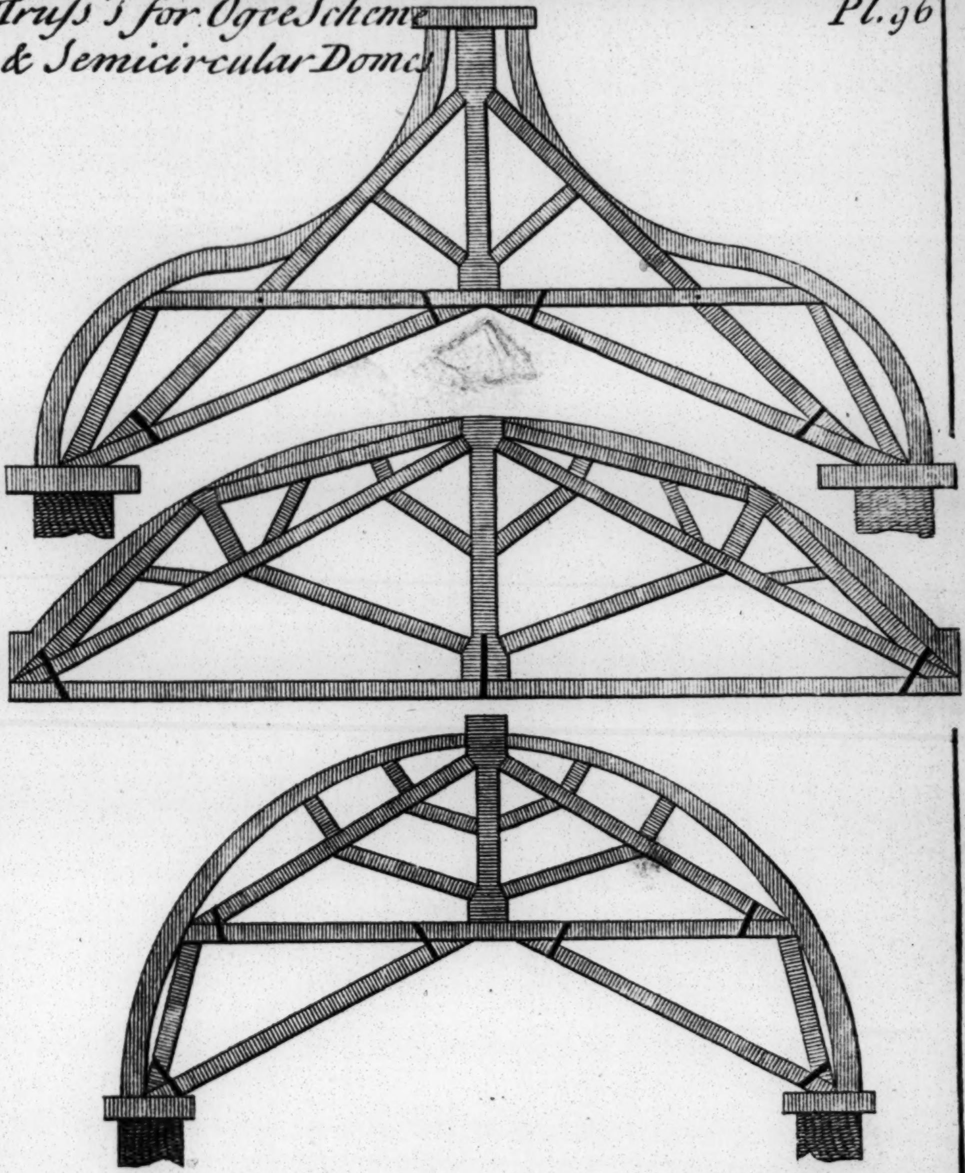


Truſs's for Roofs to Pavilions.

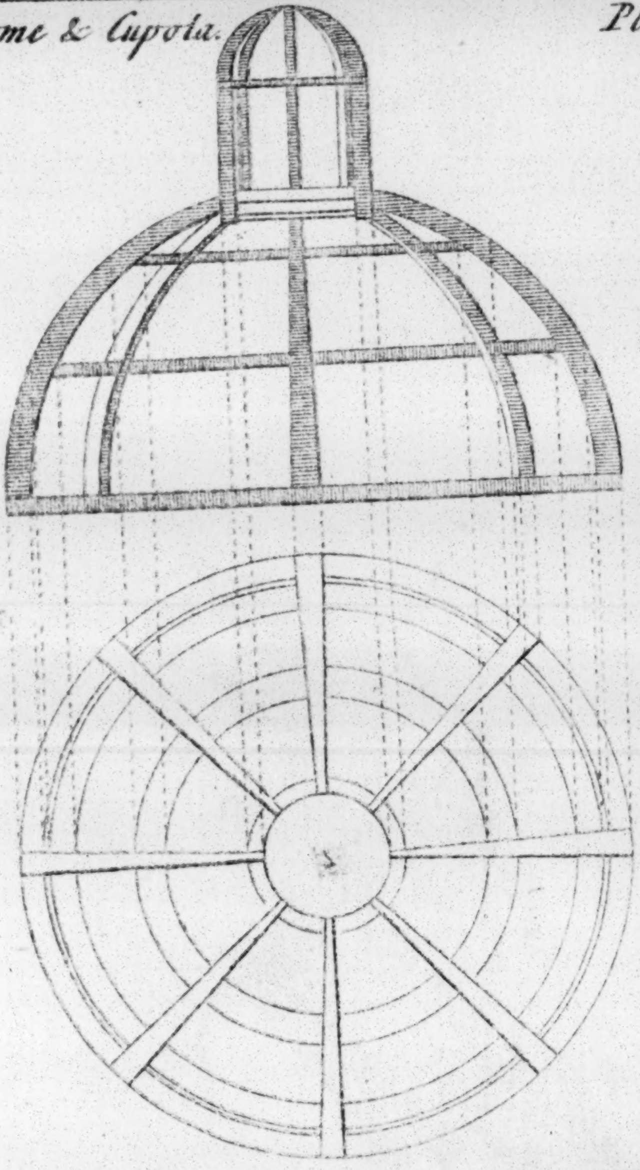


Truſs's for Ogee Scheme & Semicircular Domes

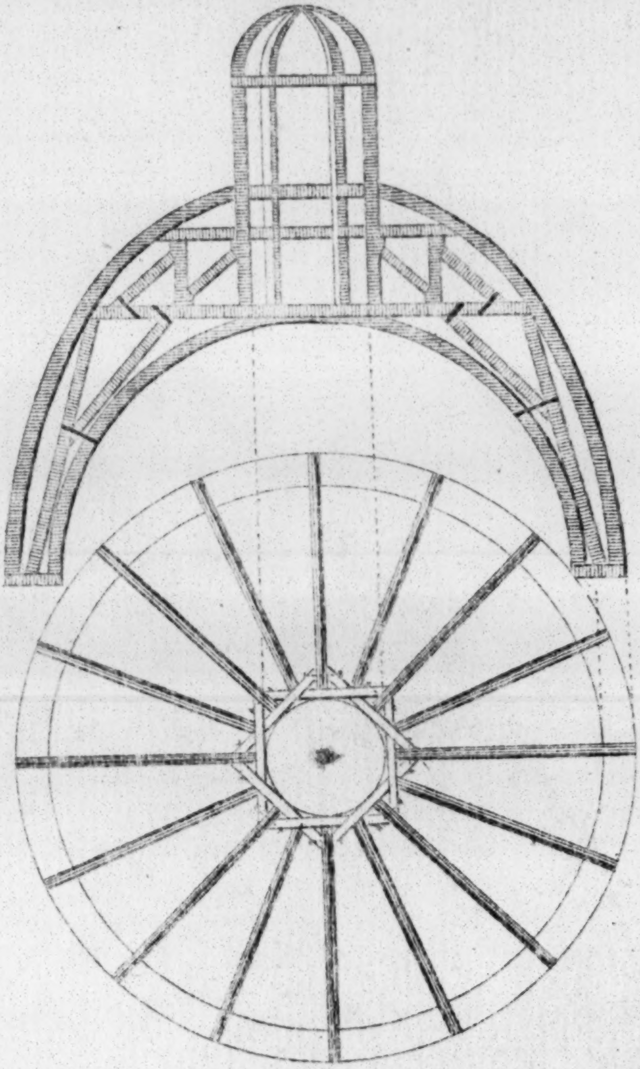
Pl. 96

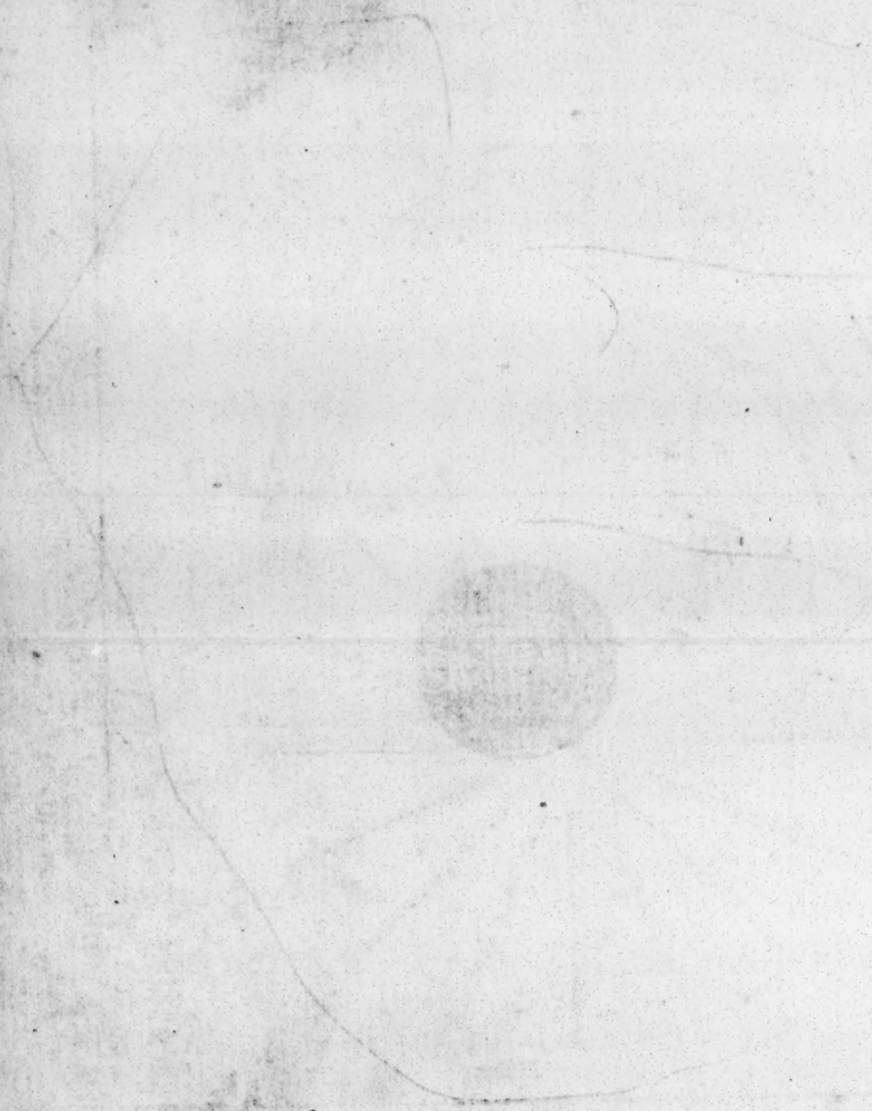


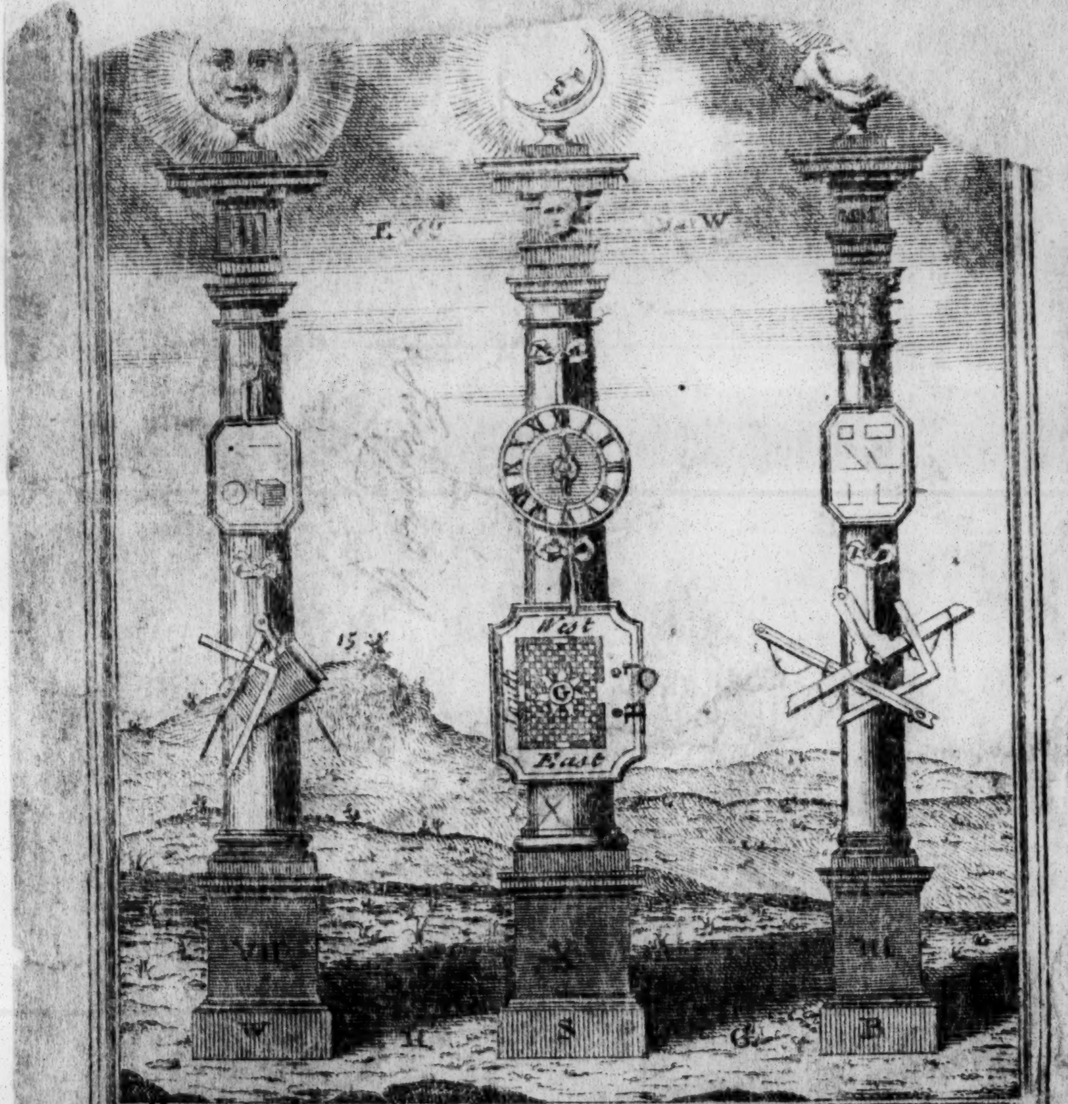
A Rib'd Dome & Cupola.



A Truſs'd Dome & Cupola.







Frontispiece.

Batty Langley Invent. A.L. 5741. Tho: Langley Del. & Sc.

John Hall

[illegible]

John [illegible]
his Book March
4 1792 Born April
A
10 1797

If a piece of timber 12 Inches square
Weighs 1 Hundred and a half What will
a piece of 24 Inches Square

11352.aa.29.